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RAILWAY AGE

An Unprecedented Labor Negotiation

The making of an agreement, effective February 1, by representatives of all the railways and of all the national railway labor organizations for a ten per cent reduction of wages for one year was an event unprecedented in railway history.

This was the first time when committees representing all the national railway labor organizations ever entered voluntarily into negotiations with a committee representing all the railways regarding a reduction in wages. No national railway labor organization ever before agreed to a reduction of the wages of its members. In this instance, every national railway labor organization agreed to it. Many employees do not belong to the national unions, but the changes that would be made in the wages of most of them were virtually dependent upon the outcome of the negotiations with the national unions.

An Event of National Importance

Therefore, these negotiations involved almost all of the railways of the United States, on the one hand, and almost all of their present 1,200,000 employees, on the other hand. Indirectly, they also involved the many thousands of former employees who are now out of work, because they determined the basis of compensation upon which, if re-employed this year, they will return to work. In other words, there were involved 250,000 miles of railroads with an investment of over \$26,000,000,000, at least 1,500,000 men, and approximately \$200,000,000 in wages. Unquestionably the negotiations were the most important that ever occurred between "capital" and "labor" in the history of the world.

They were of great importance not only to the railways and their employees, but to every other person in the United States. Indeed, they may be said without exaggeration to have been important to every person in the world. The entire world is suffering from a profound depression. American railways have been affected relatively more adversely by it than any other American industry, and in consequence a revival of railway earning capacity and credit is one of the things most essential to a revival of general American business. While this reduction of wages will not solve the extremely difficult financial problem with which many railway companies are confronted, it will con-

tribute largely toward its solution. It will not only help to save many railways from bankruptcy, but will help to increase railroad employment and purchases, and thus will be an important contribution toward the revival of general business in America; and a revival of business in this country will help to revive it throughout the world.

The outcome of the negotiations is hardly more gratifying than the way in which they were brought about and conducted. Preliminary conferences were held in New York some weeks ago by a committee of nine railway presidents and the heads of the national railway labor organizations. Subsequently, the labor leaders secured authority from their organizations to negotiate to a conclusion questions which had been raised by themselves, and also the question of a reduction of wages, which had been raised by the railway presidents. This was followed by the creation by all the railways of a committee of nine presidents, with Daniel Willard as chairman, which also was authorized to negotiate these matters to a conclusion.

Spirit of Co-operation Shown

For almost three weeks the representatives of the two sides exchanged proposals and views regarding wages, stabilization of employment, the six-hour day, co-operation between managements and men regarding competing means of transportation, and several other matters. Sometimes the representatives of the two sides met separately, and sometimes jointly. The joint conferences were frank, friendly and conciliatory. Such propaganda in the press as has so often marked labor negotiations was almost entirely avoided. It was recognized by the leaders on both sides that the existing emergency in the railroad industry presented a problem of gravity to managements and men that imperatively demanded co-operative concessions and action, and, on the whole, they dealt with the problem presented in as fine a spirit and as statesmanlike a way as any important economic problem has been dealt with during this depression. There were differences of opinion both within the labor organizations and within the presidents' committee regarding various matters, as well as differences between the presidents' committee and the labor organizations, but the neces-

sity for compromise finally was sensibly recognized and accepted by everybody.

It may be said that it was plain to every intelligent person that railway wages must be reduced. That is true, and if a 10 per cent reduction for a year had not been agreed to, it is practically certain that in time, a 15 per cent reduction which would have been permanent would have been made. But the railways were confronted with an emergency which demanded a reduction immediately, and if the slow processes of the Railway Labor act had been followed, as employees could have insisted upon, the reduction would have been indefinitely delayed. It may be said that in agreeing to an immediate reduction the employees have done only their duty to their industry. That is true also; but the number of men who do voluntarily what seems to others to be their plain duty is not so large that the voluntary performance of a duty can reasonably be depreciated as unworthy of commendation. Under the agreement the railway wage question has been settled only for a year. It will, however, not only help the railways in the present emergency, but give time to determine whether only a temporary reduction will be justifiable or a permanent reduction will be necessary. Railway labor leaders and employees have shown a fairness, reasonableness and public spirit in helping the railways in this emergency that are in marked contrast to the attitude that has been assumed by regulating authorities and many shippers.

The committee of nine presidents had no easy task. The labor organizations asked them for expressions and concessions regarding several important matters. In a sense, the most important of these concerned the six-hour working day; but it was made clear that this could not be seriously considered at present. There was much negotiation regarding stabilization of employment. That employment can be stabilized more than it has been is unquestionable; but conditions affecting it vary on different railroads and therefore the presidents' committee confined itself to recommending negotiations regarding stabilization between the individual railways and their employees.

There was no difficulty in arriving at agreement as to the desirability of co-operation between managements and men to secure changes in those government policies which, by fostering competing means of transportation, reduce both railroad earnings and railroad employment.

The most immediately pressing necessity of many railways is to so increase their net earnings as to enable them to meet their fixed charges and refund the more than \$400,000,000 of bonds, equipment trust obligations and other loans the principal of which will become payable in 1932. Hardly less essential to them is the beginning of a revival of general business and a consequent increase in freight traffic. The most effective way in which the railways can contribute toward a revival of business and of their own traffic is by increasing their own employment and purchases as

much as the financial condition and prospects of each railway will warrant.

Where Leadership Is Needed

No railway is at all likely to increase dividends under present conditions, and under these conditions the reduction or complete abolition of dividends has become a matter of comparatively little importance. Stock market prices are now being determined, and will continue to be determined during the depression, far more by signs or lack of signs of improving business than by dividends. Money that is now paid out in dividends helps business very little, because those who receive it are in such a funk that they will not spend it. On the other hand, any additional money that is spent for the employment of labor and the purchase of equipment and materials will produce beneficial effects that will ramify throughout the entire industry, commerce and finance of the country. In view of the huge reductions that the railways recently have made in their expenditures for equipment and maintenance, it is obvious that they need to give as much more employment and make as much larger purchases as they possibly can.

Several constructive steps have now been taken to relieve the railroad crisis. These include the advance in rates granted by the Interstate Commerce Commission, the reduction of wages agreed to by the employees, the advance in grain rates in western territory made possible by the decision of the Supreme court, and the creation of a federal finance corporation to make loans to railroads and other corporations on collateral which, in the long run, will prove to be sound, but which, under present credit conditions, ordinary financial institutions will not accept. Railway executives, like other business men, should squarely face the necessity of doing all that is possible to revive general business; consider with statesmanlike breadth of vision what they can contribute toward that end; and then show the courage to take risks in doing it.

There is a widespread outcry for leadership, and general complaint because of the lack of it, although there is nothing to prevent anybody, including those who make these complaints, from becoming a leader if he has the brains and courage to do so. What is needed is not merely leadership by a few men in public and private life, but leadership by every man who has assumed the responsibilities of leadership by accepting a position of leadership of any kind, whether in public or business life. When all of those who have assumed the responsibilities of leadership by accepting positions in which they ought to be leaders actually begin to lead, the railroad problem and every other important economic problem now confronting this nation and the world will begin to be solved. Never before during this depression have any men in the United States given so fine an example of leadership as was given by the leaders on both sides who brought about this voluntary reduction of railway wages.

What Price Boiler Explosions?

Probably no greater accomplishment in railroading has been recorded in the past two decades than the reduction of locomotive boiler explosions due to crown-sheet failures from 92 in 1912 to 13 in 1931. It must be admitted, however, that the Bureau of Locomotive Inspection, which has been laboring long and effectively under the able leadership of Chief Inspector A. G. Pack to assist the railroads in safeguarding locomotive operations, reports two more crown-sheet failures in 1931 than in 1930, four more people killed and 27 more people injured. In fact, in recent months, boiler failures have been occurring all too frequently, and one need be neither an alarmist nor a prophet to foresee the necessity of redoubled vigilance in every phase of locomotive boiler construction, maintenance, equipment and operation, if a continued reduction in the number of boiler failures is to be expected.

Fully 90 per cent of all fatal accidents caused by the failure of locomotive parts and appurtenances are due to boiler explosions as a result of crown sheets failing, and these failures are increasingly hazardous with the increased size of modern boilers and the higher steam pressures carried. No extensive calculations are necessary to visualize the tremendous amount of energy released when a locomotive boiler suddenly gives way. In one case, according to the chief inspector's recent report, "The force of the explosion tore the boiler from the frame and hurled it forward 429 ft. The boiler alighted on the track and then slid forward for some distance, where the locomotive running gear and train collided with it, resulting in the derailment of the running gear, tender and 14 freight-train cars, 8 of which caught fire and were destroyed."

In spite of the fact that railroad travel is the safest known means of transportation—it is said to be safer than walking—and in spite of the notable success of the railroads over a period of years in safeguarding boiler operation, there is still room and, in fact, an urgent necessity for further improvement. Probably man-failures in this connection can never be entirely eliminated, but the question may well be asked if everything possible has been done to minimize them and if all practicable mechanical safeguards have been applied to forestall failures of the human element or, at least, limit the attendant damage. (The results of boiler explosions, largely due to crown-sheet failures, in loss of life and personal injuries, with accompanying heavy damage claims, damage to equipment and lading, and particularly loss of prestige and public confidence, are difficult to evaluate. They naturally lead to the question, "What price boiler explosions?", which must be answered with the statement that the actual out-of-pocket expense of a single boiler explosion may well reach several hundred thousand dollars, or enough to pay for the application of all well-established

appliances which increase the safety of locomotive boiler operation.

No railroad wants publicity in connection with low-water cases, especially at the present time, and the prospect of such adverse publicity, to say nothing of possible personal injury claims and property damage, is sufficient to justify managements in making sure that boiler maintenance and operating conditions are checked with unremitting care and that all practicable mechanical precautions and safeguards are provided to insure against failure of the human element.

Store-Door Delivery Should Soon Be General

The provision of store-door pick-up and delivery as a part of the railroads' freight transportation service throughout the country is an inevitable development of the relatively near future. Already through transportation from door to door is being offered by the railroads in the southwest, most of those on the Pacific Coast and certain roads in the middle west and northwest. Rumors of plans for similar service on railroads in the Trunk Line territory have been afloat for months, and recently M. W. Clement, vice-president in charge of operation of the Pennsylvania, definitely predicted the ultimate adoption of store-door delivery by the eastern roads. Testifying before the Interstate Commerce Commission in the eastern consolidation case, he said, "Rail carriers are going to have to meet the situation as to truck competition. Truck competition gives complete delivery from the factory door to the store door. The railways to meet that competition, are going to have to do likewise. This is going to involve eventual store-door delivery."

It is true that the offer of pick-up and delivery service is only one of the measures which the railways must adopt if they are to recover the l.c.l. as well as the carload traffic which they have lost to highway competitors. This has been proved in the experience of the roads which have been successful in meeting highway competition, all of which attest the necessity of equaling or bettering the service of competitors from every standpoint. Nevertheless, store-door delivery must be considered one of the essential factors in any program designed to recover lost traffic.

The railroads badly need the traffic which competitive motor trucks are now carrying. Cut rates have been a consideration in the loss of some traffic, but superior service rendered by the trucks has been a more important consideration. Yet there is no service rendered by the trucks which cannot be duplicated or improved by the railways through a combination of rail and truck service. When all the railroads see fit to alter their service to meet modern competitive conditions as some railroads already have done, the tide of traffic will turn. It cannot turn too soon.

Employees Accept Ten Per Cent Wage Cut

Carriers withdraw
15 per cent notice
and will make an
effort to main-
tain and increase
employment



Mr. Willard and Mr. Robertson
Signing the Agreement

LABOR executives of 20 unions representing various classes of railroad employees accepted a 10 per cent reduction in wages for railroad employees on January 30, the agreement being signed by the labor executives and nine railroad presidents representing the railroads late on Sunday night, January 31 and being effective from February 1, 1932, to January 31, 1933. The agreement, reached after 16 days of negotiations between a committee of nine railroad presidents representing the railroads and the executives of 20 unions representing the employees at the Palmer House, Chicago, embodies the terms laid down by the railroad presidents on January 17 and 23 in their replies to the unions' proposals and emphasizes the carriers' willingness to maintain and increase employment.

The negotiations resulted in two agreements, each of which was signed by the nine presidents and the 20 labor executives. One agreement provides for the 10 per cent reduction in wages and specifies that the formal notices served by the participating railroads for a 15 per cent reduction in present rates of pay shall be withdrawn and that the railroads will make an earnest and sympathetic effort to maintain and increase railroad employment. The other agreement deals with the carriers' action on the unions' program and is virtually the same as the reply made by the railroads in answer to the unions' proposals and published in detail in the *Railway Age* of January 30, page 203. It expresses the railroads' attitude toward stabilization of employment, the six-hour day, a federal bond issue for grade crossing elimination, consolidation, the regulation of highway transportation, retirement insurance, employment bureaus and payroll reserves.

Unions Accept the Cut

The unions' decision to accept the agreement was reached in a meeting of the Railway Labor Executives' Association on Saturday, January 30, after Daniel Willard, president of the Baltimore & Ohio and chairman of the committee of presidents, had explained, in

a joint meeting in the morning, that unless the unions accepted the 10 per cent cut the railroads would be forced to every means at hand to effect the necessary economies and that the acceptance of a 6½ per cent reduction or any compromise to that effect would merely be temporizing with the situation.

The carriers' reiteration of their intention to aid in the solution of the unemployment problems was expressed by Mr. Willard in an affirmative answer to a letter from D. B. Robertson, chairman of the Railway Labor Executives' Association, on January 31. Mr. Robertson's letter is as follows:

After a painstaking review of the proposals and arguments which have been ably and forcibly presented in behalf of the railroads, we feel compelled to reiterate our previous opinion that as a matter of pure right and justice the railway employees could not be called upon to agree to a 10 per cent reduction of their meager earnings. Nor do we wish to give any assent to the theory that wage reductions are to be regarded ordinarily as the appropriate means to promote prosperity. We cannot believe that the public welfare is advanced by reducing the purchasing power of labor.

But, with a profound sense of our responsibility to the workers whom we represent and to our country, we have weighted the urgent needs of the railroad industry and the demands of the public welfare in this present unparalleled situation against the individual sacrifices requested of the railroad employees. In the hope that our action may improve the health of our industry, may improve the co-operative relations of management and employees, may stimulate a revival of business, and may advance the general welfare, we have decided to accept the proposal of the railroads to the employees whom we represent, that—

Ten per cent shall be deducted from each pay check for a period of one year, beginning February 1, 1932; basic rates shall remain at present; this arrangement shall terminate automatically January 31, 1933.

We attach the following conditions to this acceptance of your proposal:

(1) That the formal notices served by the railroads whom you represent upon the organizations of employees whom we represent, seeking a 15 per cent reduction in present rates of pay, shall be withdrawn and further proceedings thereunder discontinued.

(2) That the railroads whom you represent will agree that, without attaching any limitation upon the use of funds derived from this payroll deduction, the participating railroads

will make an earnest and sympathetic effort to maintain and increase railroad employment.

In the concluding joint meeting on January 31, when the agreement was signed, Mr. Willard agreed, upon the request of Mr. Robertson, that the committee of presidents would lend its influence in adjusting any difficulties that might arise under the agreement. Mr. Willard also assured Mr. Robertson that the committee would use its influence in endeavoring to have the principles embodied in the agreement applied to the Class II, terminal and short line railroads, including the Delaware & Hudson, which was not represented in the conference.

The agreement was reached after 16 days of negotiations during which most of the time was devoted to the consideration of the unions' proposals and counter proposals. On January 17, as described in the *Railway Age* of January 23, the presidents made their first reply to the unions' proposals and on January 23, as described in the *Railway Age* of January 31 they gave their final answer.

The unions deliberated over the final reply of the railroads from January 23 to January 29, when they met with the railroad presidents. On January 25, when the executives of the 21 unions conferred to poll the results of the brotherhood individual meetings, 10 of the 21 were ready to announce their action. Of these, eight had been given full authority to act without consulting further with their men, while the organizations of the other two had also come to an agreement. On January 27 the International Longshoremen's Association withdrew from the negotiations, electing to carry on individual negotiations with the four or five railroads on which it is recognized.

Six and One-Half Per Cent Reduction Proposed

The representatives of the 20 unions had reached conclusions on January 28 but a resolution adopted by the Brotherhood of Railroad Trainmen introduced a qualifying provision over which the labor executives deliberated until Friday morning, January 29. This resolution read as follows:

Whereas the monthly earnings now made by the classes represented by the Brotherhood of Railroad Trainmen are far below the amount to permit them to live in comfort and decency, as shown by the reports of the Interstate Commerce Commission, it is the position of this association that the wages of such classes should not be reduced. However, in view of all of the circumstances now confronting us, for which we are not responsible, we find that the president and the executive committee of the brotherhood should join the representatives of the other standard railway labor organizations dealing with the wage matter and undertake to make the best settlement possible. Therefore, be it

Resolved, that the president and the executive committee be authorized and instructed to join the representatives of the other standard railway labor organizations and negotiate a settlement of the wage matter on the basis of a percentage deduction from each pay check (not to exceed 10 per cent) for a period of one year, basic rates to remain as at present. This arrangement to terminate automatically 12 months after the plan becomes effective; and be it further

Resolved, that the arrangement specifically provides that the railroads, parties to these negotiations, will not undertake to reduce wages for a period of one year after the termination of this agreement.

As a result of this resolution the 20 labor executives propounded a set of four proposals which they submitted to the railroad presidents at a joint meeting on January 29 and which were as follows:

1. Six and one-half per cent to be deducted from each pay check for a period of one year, basic rates to remain as at present. This arrangement to terminate automatically 12 months after the plan becomes effective.

2. In consideration of an agreement of the employees for a payroll reduction for one year, with basic rates as at present, the railroads agree that they will not undertake to reduce wages for one year after the termination of the agreement.

3. Six and one-half per cent to be deducted from each pay check for one year and 3½ per cent to be deducted from each pay check for one year, but to be repaid in monthly installments during the following year to individual employees or their heirs. Basic rates to remain as at present. This arrangement for deduction to terminate automatically 12 months after the plan becomes effective.

4. Six and one-half per cent to be deducted from each pay check without limitations as to use; 3½ per cent additional to be deducted; the resulting funds to be allocated by agreement between the contracting organizations and each individual railroad for providing additional employment or direct relief for furloughed railroad employees. This arrangement for a deduction of 6½ and 3½ per cent to terminate automatically 12 months after it becomes effective.

Railroads Reply to Compromise Propositions

When these proposals were submitted to the presidents, they left the meeting to consider them and after 15 min. returned with a negative reply. The labor executives considered this reply until 8 p.m., when, in a joint meeting with the railroad presidents, they expressed dissatisfaction with the hurried manner in which the presidents disposed of the proposals.

At this meeting Mr. Willard explained that owing to the reduced cost of living, the employees would be able to live in substantially the same manner with their wages cut 10 per cent as they did before. In answer to the proposal that no wage reduction be pressed for another year he said that it was impossible to tell what conditions the railroads would be facing in 1933, and emphasized this contention by citing the January business this year as 18 to 20 per cent below that of the same month last year and much lower than in 1930. He said that since no one could tell just when the upward trend in business will come, the railroads could not bind themselves in advance. He stated that if an agreement for a 10 per cent cut for one year were signed now, better times would result from that action. At the same time the unions were bound for only one year.

The presidents then reconsidered the propositions and met with the unions on January 30, when Mr. Willard expressed sympathy with the desire of the unions to protect their members but contended that the financial plight of the railroads was so serious that a compromise was impossible. After this final stand by the railroads, the unions met individually and authorized their executives to accept the 10 per cent cut. The presidents were informed of this conclusion at a joint meeting at 3 p.m. on January 30.

Signing of the Agreement

The agreement was signed by the union executives and the railroad presidents at 11:40 p.m. on Sunday, after the full accord of both groups was secured at a joint meeting in the morning and after the agreement was drafted during the intervening 12 hours. In the presence of the 170 general chairmen who had sat as spectators during the entire negotiations, Mr. Willard made a short talk in which he characterized the signing of the pact as a distinct epoch in the matter of labor relations and then placed the first signature on the documents. The other presidents followed with their signatures and then the 20 union executives signed.

In his speech Mr. Willard said, "We men on this side of the table desire to compliment you gentlemen on the patience, tact, statesmanship and unselfish patriotism you have exhibited during these negotiations.

You might have obstructed and delayed the settlement of this problem for months and forced us to take a long and tedious course which would have left bitterness and partisanship where now there is friendship and harmony. Even so you would have been following the railway labor act as set down by Congress, providing for an unwieldy adjustment of labor problems. But you recognized and took advantage of a great opportunity to join in a great constructive movement. I wish to emphasize our sincere admiration for the remarkable leadership which you have displayed and I know I voice the sentiments of my committee colleagues in saying this."

Mr. Robertson replied that the unions had acted in good faith, hopeful that their sacrifice would not prove in vain. In a statement issued by Mr. Robertson after the signing he said three points strongly influenced the unions' decision. They were:

"1. A desire to do all within their power to aid in lifting the nation out of the worst depression of business we have ever experienced.

"2. A desire to show the capacity of organized labor to do a big thing in a constructive way to advance the general welfare, even at the expense of personal sacrifices that would deter narrow-minded persons.

"3. A desire to encourage our friends, and not to encourage our enemies, in the railroad industry and elsewhere."

D. & H. Enginemen Agree to Hourly Basis of Pay

The Delaware & Hudson has reached a tentative agreement with its enginemen calling for payment on a basis of hours instead of miles.

The plan provides for a monthly salary of \$300 for all regular enginemen and a guaranteed minimum of \$200 for those on the extra board. The \$300 salary would be based upon 240 hours of work at \$1.25 an hour, and after any regular engineman had been credited with this number of hours in a month, he would cease work until the beginning of the next month. Men on the extra board would also be paid at the rate of \$1.25 an hour, with a guaranteed minimum of 160 hours each month, and with higher payments pro rata in the event that more than the minimum hours of work were performed.

Some employees would earn less than they do now under the arrangement and some would work longer hours for their wages but, it is believed, the assurance of employment and the better provision for men on the extra board would be to the benefit of this class of employees as a whole. The Delaware & Hudson has been remarkably successful in its plan for stabilizing employment, and has maintained steady employment for its maintenance and shop forces throughout the depression.

Negotiations are in progress with the other train and engine service brotherhoods looking to a basis of hourly payment with guaranteed minima for men on the extra board, similar to the agreement reached with the enginemen. The B. and L. E. national officers have not as yet given their approval to the plan.

Illinois Terminal and St. L.-S. F. Cut Wages

The Illinois Terminal, effective February 1, reduced the wages of all employees except trainmen 10 per cent. and thirty-five hundred mechanical employees, train porters, steam shovel engineers and mechanical supervisors on the St. Louis-San Francisco have accepted a 10 per cent cut in wages, also effective February 1. This group represents about 15 per cent of the total employees.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 23 amounted to 562,938 cars, a decrease of 10,338 cars as compared with the week before and a decrease of 152,536 cars as compared with the corresponding week of last year. As compared with 1930 this was a decrease of 299,408 cars. The principal decrease as compared with the preceding week was in the loading of coal, while grain, forest products and merchandise showed increases. The summary, as compiled by the Car Service Division, A. R. A., follows:

Revenue Freight Car Loading			
Week ended Saturday, January 23, 1932			
Districts	1932	1931	1930
Eastern	126,347	158,776	201,434
Allegheny	110,533	146,265	177,227
Pocahontas	35,456	45,036	59,731
Southern	88,371	112,467	132,871
Northwestern	65,152	87,407	105,000
Central Western	88,553	108,007	124,756
Southwestern	48,526	57,516	61,327
Total Western Districts	202,231	252,930	291,083
Total All Roads	562,938	715,474	862,346
Commodities			
Grain and Grain Products	32,575	39,543	38,670
Live Stock	21,051	24,835	29,081
Coal	107,493	155,806	211,027
Coke	5,452	9,237	11,865
Forest Products	19,555	34,179	45,275
Ore	3,469	5,105	7,638
Mdse. L.C.L.	188,512	208,259	232,980
Miscellaneous	184,831	238,510	285,810
January 23	562,938	715,474	862,346
January 16	573,276	725,212	847,155
January 9	572,504	713,128	862,461
January 2	503,325	614,860	775,755
December 26	441,589	536,292
Cumulative total, 4 weeks	2,112,043	2,768,674	3,347,717

The freight car surplus for the two-week period ending January 14 averaged 740,925 cars, a decrease of 9,771 as compared with the previous period. This included 391,648 box cars, 271,738 coal cars, 31,218 stock cars and 15,755 refrigerator cars. Car surplus figures hereafter are to be compiled semi-monthly instead of four times monthly as has been the practice.

Car Loading in Canada

Car loadings in Canada for the week ended January 23 amounted to 40,253 cars, an increase of 469 cars over the previous week, but a decrease of 6,862 from loadings for the third week last year. Coal loadings increased by 285 cars, and ore by 23 cars, but all other commodities showed decreases. The index number for merchandise showed a slight drop, from 91.82 the previous week to 90.47 and for total loadings the decrease was from 72.82 to 71.56.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
January 23, 1932	40,253	20,108
January 16, 1932	39,784	20,046
January 9, 1932	38,784	19,481
January 17, 1931	47,115	27,287
Cumulative Totals for Canada		
January 23, 1932	118,821	59,635
January 17, 1931	127,430	73,661
January 18, 1930	152,392	99,284

AIR MAIL POSTAGE FIVE CENTS A LETTER; COST 14 CENTS.—H. D. Pollard, president of the Central of Georgia, discusses, in his latest circular, the cost of air transportation, as reported by the United States Post Office Department. Figures published for the year 1930 show that on three million pounds of air mail (less than one per cent of the total volume of non-local mail transported) there was a loss of \$15,168,788; which is equal to a tax burden, imposed on the people of the country of nine cents for each letter carried.

Treating Timber for Railway Uses

Service records and refinements in practice receive
major attention at Wood-Preservers' Convention

THE fact that the activities of the timber treating industry are linked most intimately with those of the railways was evident by the number of railway men among the more than 300 persons interested in wood preservation who attended the twenty-eighth annual convention of the American Wood-Preservers' Association at St. Louis, Mo., on January 26-28. It is indicated also by the attention given to railway uses for treated timber in the program for the meeting, which included papers on The Treatment of Bridge Timber and Piling on the Atchison, Topeka & Santa Fe, by R. A. Van Ness, bridge engineer of that system (to be abstracted in a following issue); on Creosoted Pile Foundations for Railway Structures, by F. R. Judd, engineer of buildings of the Illinois Central; on Thirty-Two Years' Experience with Treated Ties on the Chicago & Eastern Illinois, by J. S. McBride, chief engineer of that railway; and on The Experimental Treatment of Hardwood Ties by J. F. Harkom of the Forest Products Laboratory of Canada, Ottawa, Ont. It was evident also in the reports of committees on The Treatment of Car Lumber and of Poles, on Bridge and Structural Timber, on Service Records of Ties, of Posts and of Poles, etc. Consideration was also given to refinements in treating practices to still further improve the character of treatment and to means of extending preservative treatment to wood now used untreated, as presented by committees and by representatives of the forest products laboratories of the United States and Canada. John S. Penney, vice-president of the T. J. Moss Tie Company, St. Louis, Mo., presided over all sessions of the convention as its president.

At the closing session on Thursday morning the following officers were chosen for the ensuing year: President, Elmer T. Howson, western editor, *Railway Age*, Chicago; first vice-president, R. S. Belcher, manager treating plants, Atchison, Topeka & Santa Fe, Topeka, Kan.; second vice-president, S. R. Church, consulting engineer, New York; secretary-treasurer, H. L. Dawson (reelected); directors, F. C. Shepherd, consulting engineer, Boston & Maine, Boston, Mass.; B. M. Winegar, Canada Creosoting Company, Montreal, Que. Chicago was selected as the location for the next convention, to be held on January 24-26, 1933.

Conditions Within the Industry

Shortly after calling the convention to order, President Penney reviewed developments within the industry during the last year. He referred especially to the drastic readjustments in plant activities that have been



Good for Many Years More Service
After 20 Years in the Track

necessary by reason of the decline in the demand for treated cross-ties as a result of their increased life. He commented also on the progress that has been made in treating timber for new uses on the railways and elsewhere and urged greater attention to this subject as a means of extending the economies possible by more widespread treatment.

Mr. Penney then introduced R. C. White, assistant general manager of the Missouri Pacific, who read a paper prepared by L. W. Baldwin, president of the Missouri Pacific, who was absent from the city. Opening with the statement that we are suffering today from a surplus of transportation, Mr. Baldwin referred to the competition which has developed on the highways, on the waterways and in the air, all of which is aided, and to a

large extent made possible, by direct or indirect government activities. "Virtually all of the competition confronting the railways is also without regulation," he said.

"The American people," he continued "are entitled to the best transportation that can be provided, and they are entitled to it at the lowest price that can be justified. If the public prefers other kinds of service than that provided by the railways and is willing to pay what that service costs, the railways have no complaint. I do not believe that it is fair or right, however, that our tax burden shall be increased in order to permit these private enterprises to sell the public a service in competition with the railways at a price that is less than the cost to produce it and have their deficit made up out of the public treasury. It seems most unfair that the agencies of government should be utilized to weaken and possibly break down and destroy the railroad plant that will constitute the backbone of our transportation system for years to come. The answer to the railroad situation is easy to find and difficult to apply. Briefly, the government must get out of the business of competing with private enterprises in the way it now is. The time is here for the thinking people of the country to face the facts, wake up and do something about it."

Many Reports Were Presented

The Committee on Marine Piling (M. F. Jaeger, C. R. R. of N. J.-Reading, chairman) presented service records on the life of creosote piles in Seattle and Tacoma harbors, supplied by the Northern Pacific, covering periods of service up to 23 years. A progress report, the third to be presented, on an international termite exposure test, submitted by George M. Hunt, Forest Products Laboratory, Madison, Wis., and T. E. Snyder, Bureau of Entomology, Washington, D. C., re-

viewed the condition of specimens in the various test installations in the Panama Canal Zone, Australia and elsewhere, and included tabular records of the condition of specimens, classified according to the preservative employed.

Progress in the study of 61 chemicals with respect to their effect on the fire resistance of wood was reported in a paper by G. M. Hunt, T. R. Truax and C. A. Harrison of the Forest Products Laboratory, Madison, Wis. Particular attention was devoted to boric acid, mixtures of boric acid and borax, and to mixtures of borax and monoammonium phosphate, which rank among the more effective of the chemicals studied.

The Committee on Car Lumber (H. R. Duncan, C. B. & Q., chairman) listed 25 railways that treat wood for use in some parts of their cars, which showed that pressure treatment with creosote is employed by 19 of them, several of which also use other preservatives in part. The present status of the treatment of car lumber was summarized as follows: "The railroads which have used the majority of treated car material in the past are the most enthusiastic users of this material, but they are not generally in a position to furnish satisfactory figures as to the length of life to be expected from this material. This is because their cars are repaired at so many different points on their own lines and very frequently on foreign railroads. Therefore, it is not possible to prepare figures, showing definitely the economy that can be effected by the use of this material as is possible in the case of track ties."

The Committee on Preservatives (W. H. Fulweiler, Philadelphia Gas Works Co., chairman) reported on a number of assignments of a technical nature. It presented the conclusion that there is no need "for changing existing specifications for creosote to avoid adulteration. If the oil does not fully meet the identification test, now a part of the standard specification, it should be looked upon with suspicion". An appendix prepared by H. R. Duncan, superintendent of timber preservation of the Chicago, Burlington & Quincy, comprised a complete study of the creosote oils used at the treating plant at Galesburg, Ill., from 1908 to 1931, as well as a record of all material treated and the consumption of creosote in pounds per cubic foot in each class of material each year.

Committee reports were presented also on the processing of wood, the treatment of Douglass fir lumber and of bridge and structural timber, etc., most of which comprised brief statements of work in progress, or dealt with highly technical details of preservation practice. Of a similar nature was the report on the Experimental Treatment of Hardwood Ties by J. F. Harkom of the Forest Products Laboratory of Canada.

Tie Service Records

In addition to presenting tabular reports on test tie installations of several railways, the Committee on Tie Service Records (W. R. Goodwin, M. St. P. & S. S. M., chairman) prepared an extension of its table of cross tie renewal per mile of track, to include the renewal data of 25 roads for 1930. The averages for 1930, taken from this table, are presented below:

Road	Renewals per Mile of Track	
	1930	5 Year Average
A. T. & S. F.	161	151
B. & O.	120	170
C. B. & Q.	151	162
C. & E. I.	99	122
C. C. C. & St. L.	80	98
C. M. St. P. & P.	200	249
C. R. I. & P.	128	144
D. L. & W.	74	87

Road	Renewals per Mile of Track	
	1930	5 Year Average
G. N.	194	209
I. C.	181	189
K. C. S.	165	143
L. V.	64	68
M. C.	94	123
M. K. T.	163	214
N. Y. C. (East)	111	144
N. Y. C. (West)	66	82
N. P.	124	141
Penna.	120	165
M. St. P. & S. S. M.	222	258
S. P. (Atlantic System)	161	208
S. P. (Pacific System)	164	210
U. P.	113	166
C. R. R. of N. J.	83	80
Reading	121	148
C. & O.	173	221

The Preservative Treatment of Poles

One of the most comprehensive reports presented at the convention was an abridgment prepared by the Pole Service committee (H. A. Haenseler, Western Union, Chairman) of an unpublished report of the American Telephone and Telegraph Company, dated August 3, 1931, based on an exhaustive study of several pole lines of that company upon which careful service records have been kept. The general conclusions presented in the report are as follows:

The possibility of extending the life of poles through preservative treatment is abundantly demonstrated, but the capabilities of the more effective processes of treatment studies can as yet only be estimated.

Seasoning previous to use does not retard decay of pole timber in contact with the soil and the data would even seem to indicate that seasoning of pole timber to be set untreated may actually hasten decay. Seasoning, however, offers advantages through improvement in the treatability of the wood, reduction in weight and a lessening of subsequent checking. The inception of decay on the treated poles under test is gradually reaching substantial proportions and the indications are that in the cases not already affected, the beginning of decay attack will mainly be dependent upon changes in the quantity and the composition of the preservative retained in the individual poles. The progress of this decay after incidence promises to be slower than the progress of decay in similar seasoned timber which has not been treated.

When a given species of timber has been subjected to different processes of treatment, greater average resistance to decay has been found for the process which resulted in greater average penetration and larger average absorption of the preservative. The greater resistance to decay characteristic of heartwood as compared to sapwood seems to be a factor contributing to this improved resistance to fungus attack.

Experimental data on bleeding and checking in poles were also presented by this committee, although the work has not yet been carried far enough to warrant the formulation of specific recommendations for overcoming these conditions. The committee did, however, point to the necessity for the improvement of treating practice, particularly to secure as nearly complete sapwood impregnation as possible as a means of reducing infection through checks. The Committee on Non-Pressure Treatment of Poles presented a revised specification for non-pressure treatment, non-incised method, to conform with the incised method specification adopted in January, 1930.

Diversified Uses of Treated Wood

The Committee on Diversified Uses of Treated Wood (E. P. Gowing, Am. Creo. Co., chairman) presented a tabulation of uses in which the substitution of treated material would, in its opinion, result to the advantage of both the user and the consumer. Among the applications listed are foundation piles, grade separation structures, building floors and roofs, crib retaining walls, posts for fences and signs, and highway crossing planks. Its discussion of the general considerations involved is abstracted below.

The line of differentiation between old or established

uses and new or diversified uses is not clear,—many uses which are comparatively old, in general, merit a much wider use, and many uses which are not generally considered, have been employed to a limited extent for some time. Diversified use consists largely in adapting the structural units of recognized fields to the requirements of other fields and industries. The excellent records established through the use of treated cross-ties, switch ties, bridge timbers and piles, fully merit a greater acceptance than is now accorded, particularly by the smaller users whose first-hand experience has been relatively limited. The advantages of treated piles and timbers for wharves and docks is not recognized to the extent that is warranted by demonstrated results. The use of treated poles has greatly increased in recent years, but their use can be extended to advantage where less durable and less economical poles are now being used.

Even in types of construction where preserved timber has been widely used, it is not employed to the full extent that economic construction warrants, and in some cases, the performance of treated material is disregarded and substitute materials are used where treated timber would meet the requirements more satisfactorily. While past records constitute an overwhelming endorsement of the value and economy of treated timber in its many established uses, the conditions which confront the industry are rapidly undergoing a very important change. The previous problem in this country, with the exception of marine use, was largely that of preventing decay. This is now complicated by the need for resisting termites. As treated timber serves this double purpose, its value is proportionately increased and a new value is established in preventing damage by termites where, heretofore, it might not have been needed to prevent decay.

Diversified uses of treated wood in the most comprehensive sense are all uses in which deterioration through decay, termites or marine borers is a limiting factor in utilizing the structural advantages of wood. The only practical limitation of such use at this time is the distribution of small amounts of special material which is required in less than carload quantities. Outstanding in diversified uses investigated are foundation piles.

Thirty-Two Years' Experience with Treated Ties

By J. S. McBride*

After applying a small lot of treated ties in 1897, the Chicago & Eastern Illinois commenced the treatment of ties on a large scale in 1899 and increased the proportion of treated ties from year to year. The first treatment adopted was the Well-house process, using $\frac{1}{2}$ lb. of zinc chloride per cubic foot of timber, and this treatment was employed until the end of 1905. The Burnettizing process was adopted in the following year and has been applied since that time. From 1906 to 1914, treatment with zinc chloride provided a retention of $\frac{1}{3}$ lb. per cu. ft., but subsequent to 1914 this was increased to $\frac{1}{2}$ lb. per cu. ft. The treatment of ties with creosote oil was started in 1907, using $2\frac{1}{2}$ gal. per tie. A creosote mixture of 80 per cent creosote oil and 20 per cent coal tar is being used.

A considerable number of untreated ties were also applied during the first six years after the use of treated ties was taken up, but subsequent to 1905 the number of untreated ties was decreased each year so that in 1915, when the Interstate Commerce Commission inventoried the property in connection with federal valuation, only a fraction over 8 per cent of all cross-ties in track were untreated.

* Chief Engineer, Chicago & Eastern Illinois.

The treatment during the period from 1907 to 1914 was about equally divided between creosote and zinc chloride, following which a reduction was made in the use of zinc chloride and a corresponding increase in the use of creosote until the war period, when, because of the scarcity of creosote oil, it was necessary to return to the zinc treatment for several years. Since 1924 creosote has been used exclusively and is now the standard preservative on the C. & E. I.

A limit has been placed on the size of ties purchased, the standard being 6-in. by 8-in. by 8-ft. although at times a number not to exceed 25 per cent of the total quantity purchased has been accepted in 6 in. by 7 in. and 6 in. by 6 in. by 8 ft. sizes for side-track use. The kinds of wood accepted are A.R.E.A. groups TA, TC and TD, but at least 80 per cent must be group TA. Most of the ties received are red oak, which wood is preferred because it will take treatment readily and offers resistance to mechanical wear.

The requirements of the specifications for purchases provide that ties shall be made from trees felled not over one month and that they must be delivered within one month after being made. They must be straight, well manufactured, have tops and bottoms parallel and the bark entirely removed. All ties must be free from any defects that may impair their strength or durability, such as decay, splits, shakes and large or numerous holes or knots.

Road Purchases Its Ties

It is the practice to purchase ties untreated and have them treated at a commercial plant. The C. & E. I. considers the purchase of untreated ties very important as this gives the railroad control of the ties from the beginning and insures that only fit ties shall be treated. During the entire period that treated ties have been used, a high standard of inspection of the ties and the treatment has been maintained and will be continued. Rigid inspection is necessary for the best results.

The necessity of protecting treated ties in track from mechanical wear is beyond question and can best be provided by the application of adequate tie plates. During the early period of the use of treated ties this was not done as generally as it is today. For the past 15 years it has been the practice to place tie plates on all new ties applied in main track. Beginning in 1928, when the section of rail was increased, it became the practice to apply tie plates out of face to all ties on which new rail was laid, in addition to continuing the previous practice of plating all new ties placed in main track. At the present time about 50 per cent of all ties in track are provided with tie plates. Use is being made of S-irons to prevent ties from splitting. They are applied to any tie showing a tendency to split during seasoning, and section forces are provided with a supply of irons to permit their application to any ties that show a tendency to split after treatment.

It is not the practice to pre-bore or pre-adze the ties. There are so many sections of rail in track that pre-boring is not considered practical. Many ties are sawn, thus reducing the necessity for pre-adzing. Any ties adzed in track are brushed with creosote oil. Creosoted tie plugs are also used to fill old spike holes.

Renewal Statistics

Thirty-two years use of treated ties has resulted in reducing the annual renewals from around 300 per mile to about 110 per mile, although in some years they have been even lower. The table gives a summary of the number of ties renewed per mile of track for each year from 1900 to 1931, inclusive, together with five-year averages.

Year	Miles	Ties renewed per mile of track	
		Each Year	5 Year Average
1900	1,061	284	...
1901	1,107	290	...
1902	1,146	228	...
1903	1,188	198	...
1904	1,251	133	227
1905	1,391	109	192
1906	1,479	148	163
1907	1,493	217	161
1908	1,507	199	161
1909	1,514	121	159
1910	1,522	200	177
1911	1,520	134	174
1912	1,972	189	169
1913	2,008	289	187
1914	2,046	202	203
1915	2,055	255	214
1916	1,892	244	236
1917	1,871	187	235
1918	1,880	166	211
1919	1,867	141	199
1920	1,865	102	168

Year	Miles	Ties renewed per mile of track	
		Each Year	5 Year Average
1921	1,863	63	132
1922	1,654	131	121
1923	1,662	158	119
1924	1,661	92	109
1925	1,663	86	106
1926	1,662	112	116
1927	1,671	121	114
1928	1,675	122	107
1929	1,675	120	112
1930	1,674	93	113
1931	1,674	89	109

More definite than the renewal per mile of track is the percentage renewed. Taking advantage of the valuation inventory and applying to this the subsequent additions and deletions it has been found that during the past 15 years, the average annual renewals of cross ties on the C. & E. I. have been 4.09 per cent of the total ties in track, indicating an average life of 24.4 years, and this from a combination of creosoted and zinc treated ties in addition to some untreated ones.

In 1918 a test section of 11,095 ties was established that included untreated white oak; red oak; beech and gum treated with $\frac{1}{2}$ lb. of zinc chloride; red oak with $\frac{1}{3}$ lb. of zinc chloride; and red oak, elm and beech treated with $2\frac{1}{2}$ gal. of 80-20 creosote per cubic foot. The ties on curves and all gum ties were the only ones plated originally, although some additional plates have been applied since. A very complete record of these ties and of the results obtained is being kept and they are inspected annually to determine which have been or should be renewed.

Of the untreated white oak ties, 99.7 per cent have been removed for all causes and the average life of those removed was 9.78 years. Of the $\frac{1}{2}$ lb. zinc-treated ties, 92.9 per cent have been removed for all causes, those removed having an average life of 13.7 years. The life of the group as a whole will average more than 14 years.

The $\frac{1}{3}$ lb. zinc-treated ties are showing less life than those having the $\frac{1}{2}$ lb. treatment as might be expected, 96.5 per cent having been removed for all causes; the average life of those removed was 12.2 years.

It is too early to make a prediction as to the life to be obtained from the creosoted ties. After 19 years, 96.2 per cent of them are still in track and of those removed, some have had to be replaced because of derailments.

Creosoted Piles for Building Foundations

By Frank R. Judd†

The use of creosoted piling for building foundations on the Illinois Central is the natural outgrowth of its use for bridge work. The records show that the first creosoted piling was used in 1904 in connection with the development of creosoted ballast deck bridges. These records also show that creosoted piles were first used for bridge foundations in 1911 and for the foundations of building structures in the same year. For the purpose of this paper, the term "building structure" is used in the broader sense defined in rulings of the Interstate Commerce Commission as including, in addition to buildings proper, such structures as craneways, turntable and cinder pits, concrete and brick chimneys and similar structures.

In accordance with this interpretation, the records of the Illinois Central indicate that a creosoted pile foundation for building purposes was first used under the center of a balanced turntable at Champaign, Ill. in 1911. Examination of the foundation on October 30, 1931, made by digging down and exposing some of the piles, disclosed the following information: The general appearance was good, in fact, the piles looked as if they had just been driven. Borings from these piles showed that both the untreated heart and the outer treated portion were apparently as sound as new wood. The borings also showed a treatment penetration of $2\frac{1}{2}$ in. and gave off a strong odor of creosote. When placed in a paper container, these borings gave off sufficient oil to soak into and discolor the container.

The foundation soil in this instance is a sandy clay, subject to alternate wet and dry conditions, depending upon the rainfall. At the time of inspection, these piles had been in the ground 21 years with apparently no deterioration, indicating that a creosoted pile thoroughly surrounded by soil and

covered with a concrete cap to prevent volatilization of the oil, will have a long, if not a permanent, life.

Train Sheds and Coaling Stations

Train sheds are another type of structure under which creosoted piles have been used successfully. The butterfly type of shed is used extensively, especially in connection with track-elevation work. Where this shed is of reinforced concrete or steel construction, it is necessary to use piles in the sand fill or to carry the substructure down to the original ground, which is usually very costly. The logical support is, therefore, a pile foundation, and as the filling is subject to alternate wetting and drying, the use of treated piles is desirable from the standpoint of economy.

One of the earliest sheds of this kind on the Illinois Central was built in connection with track elevation work at Memphis, Tenn., in 1914. There is a downspout at every alternate post of this structure, but as no sewers are provided the water from the downspout is turned into the sand fill under the platform. Naturally this produces a very wet condition in the vicinity of these foundations for short periods of time; yet, the exposure of one of these foundations in November, 1931, showed that these piles are apparently in sound condition after 17 years of service.

Coaling stations are another type of structure under which creosoted piles can be used to advantage. The arrangement of column spacing is such that the interior columns are usually carried on the sidewalls, or on pilasters in the sidewalls, of the bucket pit, while the exterior columns are carried on isolated piers of shallow depth, supported on creosoted piling in order to avoid the expense of carrying these isolated piers down to a natural foundation, or below the fixed water line where untreated piling could be used. The depth of the center portion of the foundation is often such that a good natural foundation is obtained or the permanent water line is reached so that untreated piling can be used for this portion of the substructure. In other cases, the variation of water line may be such that creosoted piling will be required throughout the entire foundation.

An example of this type is a 300-ton coaling station built in 1917 in connection with an engine terminal. The site for this coaling station is adjacent to the Mississippi river where there is an average variation of 40 ft. between high and low water. Since a satisfactory natural foundation could not be obtained as the general soil was a silt deposit, it was necessary to resort to piling. The lowest point of the foundation was 20 ft. above low water line so that creosoted piling was used throughout. It will readily be seen that a considerable saving was made over what the cost would have been if the foundation had been carried to low water to permit the use of untreated piling.

On December 12, two piles were exposed under one of the isolated piers. From outside appearances these piles appeared to be in good condition and gave off a strong odor of creosote. Borings showed that the creosote had penetrated 2 in. into one pile and $1\frac{3}{4}$ in. into the other, leaving an untreated core approximately 10 in. in diameter. Both the treated and untreated timber were found to be in sound condition. The treated borings not only gave off a strong odor of creosote, but the heart borings gave off a very marked odor of resin, indicating that the creosoted shell was giving protection to the center of the piles.

Station Buildings

Our passenger station at Baton Rouge, La., affords a good example of the use of creosoted piling for building foundations. This structure is approximately 40 ft. wide and 400 ft. long and requires a good foundation to prevent cracks in the plaster and brick work. The station is immediately back of and adjacent to the levee which confines the Mississippi river during flood stages; in fact, some of the passenger station tracks are on the land side slope of the levee. The variation between high and low water at this point is approximately the same as at the coaling station and the foundation soil is very unstable, heavy trains passing or pulling into or out of the station causing considerable vibration. This station was built in 1922. No examination has been made of these piles, but the fact that, in spite of the vibration the brickwork and plaster are still in excellent condition, is good evidence that the use of piling was justified. The passenger station was one of a group of buildings which included a freight station 41 ft. wide by 524 ft. long, 200 ft. of which is two stories high; a power house with a brick stack, and a utility building, all of which were carried on creosoted piling.

A number of concrete and brick chimneys have been supported on creosoted pile foundations, including a concrete chimney 150 ft. high at Fulton, Ky., which was built in 1919.

† Engineer of Buildings, Illinois Central.

This foundation was examined on November 11, 1931. An extract from the inspector's notes reads as follows:

Excavation to piling about 12 ft. deep in clay.

Practically no water encountered.

Depth of pile exposed below concrete cap, 2½ ft.

Number of piling exposed—2.

Piling wiped off thoroughly and found to be in good condition.

Borings showed the depth of treatment in one pile of approximately 4 in., with an untreated core of 4 in.

The borings of the other pile indicated a depth of treatment of approximately 5 in., with an untreated core of approximately 2 in.

Both the untreated and treated borings indicated sound timber, with the treated borings giving off a strong odor of creosote.

Track Scales

Track scales of both knife edge and plate fulcrum construction are another type of structure which has been carried successfully on creosoted pile foundations. It is necessary that the foundation be stable and level, as otherwise there is a constant source of expense in maintaining the scale in a condition of accuracy. The plate fulcrum type has been used on the Illinois Central in the operation of gravity classification yards, in which case the scale is placed in the hump track a short distance below the summit of the hump on the side descending toward the classification yard.

Some of these installations have cost as much as \$90,000, an amount justifying foundations, for otherwise the money is spent to no avail. Track scales and mechanical humps have to be placed high enough so that after the passage of a car there is sufficient grade below the scale to carry it the full length of a long classification track. The foundations are therefore considerably above the natural ground or line of permanent moisture in the surrounding soil so that the use of creosoted or concrete piling must be resorted to in order to avoid the large expense which would be incurred if the concrete foundations had to be carried down to the natural ground or line of permanent moisture.

Creosoted piling has not been used sufficiently long enough to permit of a direct comparison with untreated piling, but an example may be cited of a wooden grain elevator constructed in the Chicago district on untreated piling adjacent to a river slip. Five or six years ago it was noted that the house was starting to lean toward the slip. The natural assumption was that the pile foundation and the surrounding dirt were probably moving towards the slip, leading to the corresponding movement of the dock. A record kept of a line on the dock indicated no movement, however, and upon digging down it was found that the top six inches of the piling had rotted. There was nothing to do but expose the entire foundation on that side of the building, cut off the tops of the piles and underpin with concrete. This was a difficult piece of work and involved an expense of \$30,000 which could have been avoided if the use of creosoted wood or concrete piling had been in vogue at the time this structure was built, or if the cut-off of the original piling had been below the water line.

Building Ordinances

The structures to which reference has just been made as having been successfully supported on creosoted pile foundations include turntables, train sheds, coaling stations, passenger and freight stations, concrete and brick chimneys, track scales and mechanical humps. No mention has been made of multiple story buildings. This is due to the fact that buildings of this type are usually constructed within city limits which have building codes. Most of these codes were written prior to the use of creosoted piling and no recognition is given to this type of foundation. For instance, the code in the city of Chicago requires all timber piling to be cut off one foot below city datum, or lake level, irrespective of whether it is treated or untreated; therefore, under the operation of the present ordinance no saving can be made by the use of creosoted piling, and untreated piling are always used for timber pile foundations. If the ordinance differentiated between treated and untreated piling, a reduced depth of concrete foundation could be used in some types of buildings, which would give a net reduction in the entire cost of the work. This, of course, would not apply to buildings with basements, which would bring the cut-off of the piles below the low water line, or to tall buildings where the height and consequent loads would probably justify the use of concrete caissons or concrete piles.

Of twelve ordinances for a like number of cities along the lines of the Illinois Central where structures have been built within the city limits, only one, namely, New Orleans, makes any specific provision for the use of creosoted piling. This

ordinance requires that where untreated piles are used, the cut-off must not be less than eight feet below the curb to insure constant moisture in all parts, and in the vicinity of sewers must be below the bottom of the invert. For treated piles, the cut-off shall be below the ground surface.

So far these remarks have been confined exclusively to the use of creosoted pile foundations and no mention has been made of crib foundations of creosoted material. This is due to economic conditions along the lines of the Illinois Central which seldom warrant the use of crib foundations for building structures. It must be borne in mind that this comparison applies to Illinois Central experience and should not be applied in cases where concrete materials are not readily available.

Where foundations can be built almost entirely above ground so that the material can be salvaged readily, creosoted material may be justified on the basis of conservation of material, especially if there is a possibility that the structure will have to be moved at some later date.

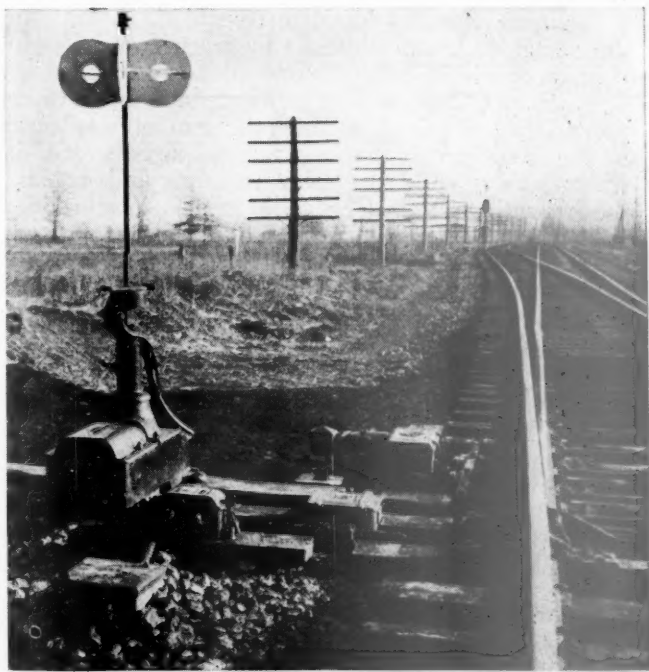
In this connection I will cite an experience that we had with turntable pits. At one time it was the practice where it was thought that the location or the life of the table would not justify concrete, to use a creosoted timber curb wall supported on a creosoted crib foundation, but conditions changed so fast on the railroad that invariably it was necessary to replace the table with one of longer span before the life of the creosoted material was obtained. In a few instances we were able to re-use the material where the tables being taken out could be shipped together with the creosoted material and put in at some other point. Where this could not be done the timbers for the cribbing, being in such short lengths and those for the curb wall being cut to a special radius, could not be used to advantage again.

Electric Lock for Spring Switch

By J. H. Oppelt*

OBJECTIONS have been raised to the use of spring switches where it is necessary to operate trains at high speed in the facing direction over them. These objections would be removed if it could be assured that the switch points were locked securely in place during such facing point train movements. A locking device has been available which requires hand operation to release the switch for a trailing movement,

* Signal Engineer, New York, Chicago & St. Louis, Cleveland, Ohio.



The Lock Plunger Is Operated by a Motor-Driven Machine

after which the train can proceed, because the switch returns to the locked position automatically after the train had passed. However, this arrangement obviously reduces the efficiency of a spring switch installation, and is, of course, not satisfactory at an end of double track where train stops are undesirable.

With these limitations in mind, an electric locking scheme for a spring switch has been devised, including a standard facing point lock such as is commonly used in interlocking, the lock being driven by a small machine consisting of a train of gears operated by a 10-volt d-c motor. The facing-point lock includes a circuit controller attached directly to the plunger, thereby permitting the use of a circuit arrangement which makes the position of the signals governing train movements over the switch absolutely dependent upon the position of the plunger. The machine used for driving the plunger was manufactured by the General Railway Signal Company, being originally designed for and having been used extensively as a skate placing device in classification yards equipped with retarders. Previously a hand-throw lever had been added to the machine so that the lock plunger can be operated in case of unusual train movements or a power failure.

A spring switch installation equipped with an electric locking arrangement, as just described, is in service on the Nickel Plate at the west end of double track at KM tower near Vermilion, Ohio. The spring switch stand is the Ramapo Style 100-A, the springs and buffer being contained in the base of the stand. The rail is of 110 lb. A.R.A. section and the switch points are reinforced. The switch is equipped with the same types of tie plates and rail braces as are standard for an interlocked switch. As this installation is on high speed track, both home and approach signals are in service.

The single track from the west extends on a tangent to form the eastbound track on the double track. Eastbound train movements are, therefore, at normal speed but westbound movements take the No. 18 turnout to single track with a 35 m.p.h. speed restriction through the turnout. The electric lock is arranged so that the switch is locked for eastward or facing point movements but is unlocked for westward or trailing movements.

A circuit was developed to control the operation of the switch lock automatically by track circuits. However, on this installation the operation is controlled manually from GC office four miles distant, no additional wires being required as the lock control was carried on the same circuit that controls the signals. GC is a water station with the inside switches and signals at the lap siding handled by a mechanical interlocking.

Previous to the installation of the spring switch, a telegraph office had been maintained at KM. This office has been abandoned, with the consequent saving of the wages of three operators. Trains are now handled between KM and GC on signal indications which supersede time-table superiority, and no train orders are required. For this reason it was necessary to place the westward signal at KM under the control of the operator at GC and the operation of the signal and the lock were made interdependent.

The westward approach signal at KM is normally in the caution position, and, in addition thereto, a roadside sign, placed 1,000 ft. from the switch reads "Spring Switch—1,000 Feet—35 Miles Per Hour." The time-table restricts movements through the turnout to 35 m.p.h., but the sign was placed with the idea of calling an engineman's attention to the fact that he was approaching a spring switch.

Our experience with this installation indicates that a spring switch with a facing point electric lock can be installed in automatic signal territory for less than 25 per cent of the cost of remote control. Local conditions will, of course, determine the exact expenditure.

The lock and circuit controller, and their application were developed by the General Railway Signal Company in co-operation with and at the suggestion of the writer.

Report on Gallitzin Derailment

W P. BORLAND, director of the Bureau of Safety, has made a report to the Interstate Commerce Commission on his investigation of the derailment of a freight train on the Pennsylvania near Gallitzin, Pa., on the evening of December 9, last, about 7:09, in which a freight train of 88 cars, weighing 7,200 tons, was derailed on a steep grade while running at very high speed and 75 of the cars were thrown off the track and wrecked; and the middle brakeman was crushed to death in the wreck. Two other trainmen were injured, but not very seriously, heavy snow breaking their fall when they jumped off. The train had attained a speed of from 50 to 70 miles an hour.

The report is one of about 10,000 words. The cause is given as (a) the train started down the steep grade at excessive speed; (b) an angle cock was closed near the head end of the train, and (c) members of the crew at the rear end of the train were not prompt to apply the brakes. The conductor was on about the eightieth car and the blame at the rear end of the train appears to be placed mainly on the flagman. The conductor says that he opened the emergency valve on the front of the caboose but it is believed that he did not reach that point until the train was nearly at the point of derailment.

The derailment occurred 3.3 miles east of the Gallitzin summit. The following distances need to be noted (miles):

MO	0.0
AR	2.0
Gallitzin Station	2.3
Summit	2.6
Entrance to New Portage Tunnel	2.6
(Length of Tunnel 1631 ft.)	
SE	3.1
Point of Derailment	5.6

The grade is ascending at one per cent, some of the way steeper, to the summit. Thence 1.39 per cent descending for a short distance, then 2.36 per cent for about a mile; then 1.73 per cent to the point of derailment. The line is very crooked, one curve being 8 deg. 45 minutes, and one, where the derailment occurred, 9 deg. 23 minutes.

The train, eastbound extra 4272, consisted wholly of cars loaded with coal. It had run only about 19 miles from its starting point. Seventy-five cars were derailed and 61 of them were bunched within a distance of 480 ft. All four tracks were blocked. The two pusher engines were cut off near AR and at that time the brake-pipe pressure was 95 lb., but shortly after entering the tunnel the road engineman realized that something was wrong and the conductor on the eightieth car

(Continued on page 253)

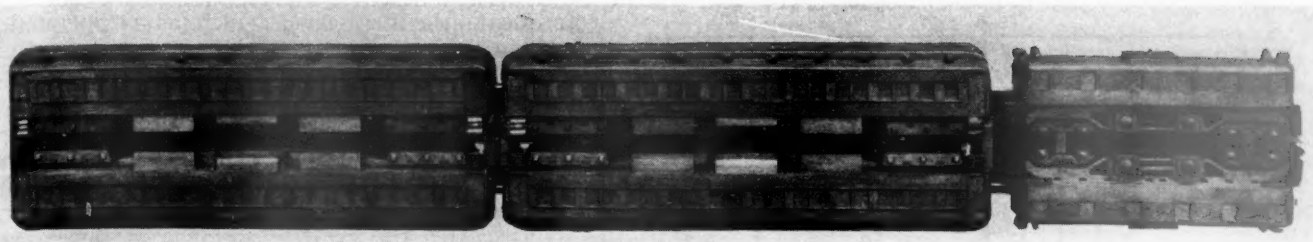


Fig. 1—Models of a Present-Type Train as Assembled for Tests

A Study of Air Resistance at High Speeds^{*}

Wind-tunnel tests of models suggest possibility of
material reduction in power requirements
by streamlining

By O. G. Tietjens and K. C. Ripley†

ONE of the important advantages of the railroad train over the bus is its higher speed. Some American trains have schedule speeds of as high as 50 m.p.h. between important cities, and most of the limited trains travel at about 40 m.p.h. On the other hand, the schedule speed of busses in intercity travel reaches nowadays almost 30 m.p.h. or only 25 per cent less than that of the average limited train.

However, after super-highways have been built, between the larger and more important cities, there is no reason why the schedule speed of busses cannot be increased to 40 m.p.h. or even higher. This can be done, and without further increase in the power required, by streamlining the shape of the busses. The next important step in the development of bus transportation will likely be in this direction, and it will probably be taken within the next few years. Then the competition of the bus will truly become of vital importance to the railroad.

What can be said about the railroad and its endeavor to improve its speed? As early as 1845 a record of

45 miles in 52 min. was made in England. At one time the train was proceeding at the rate of one mile in 48 seconds, or "at the astonishing velocity of 75 miles an hour." In the same year the American Railroad Journal said:

The other day on the London and Birmingham and on the Great Northwestern Railway a rate of 65 miles an hour was accomplished. The express trains on these lines run at the rate of nearly 50 miles an hour, stoppage included.

This happened more than 80 years ago, and although these records must of course be considered as exceptions, what efforts to increase the speed of trains can be put alongside those made in the cases of ships, automobiles, and airplanes? One remarkable attempt was made a little more than 30 years ago in Zossen, Germany, with the result that with a very heavy and powerful electric locomotive speeds up to 130 m.p.h. were obtained. After having made several runs, however, the rails were spoiled, and the results of the tests offered little encouragement to increase train speed above a certain rate which had been proved to be safe.

A New Approach to Increasing Speeds

Several years ago the matter of designing a new train or coach for high-speed service was again taken up in

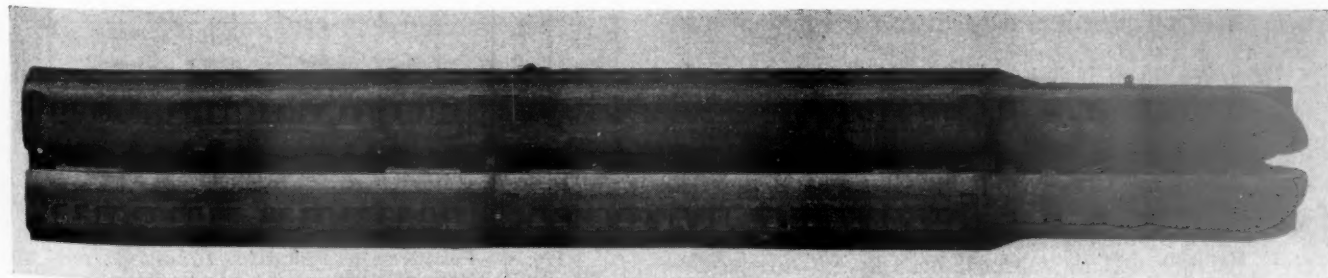


Fig. 2—Models of a Streamlined Train as Assembled for Tests

^{*}An abstract of a paper presented before the American Society of Mechanical Engineers at its annual meeting at New York, November 30 to December 4, 1931.

[†]The authors are connected with the research laboratories of the Westinghouse Electric & Manufacturing Company, where Dr. Tietjens is now in charge of hydrodynamics and aerodynamics.

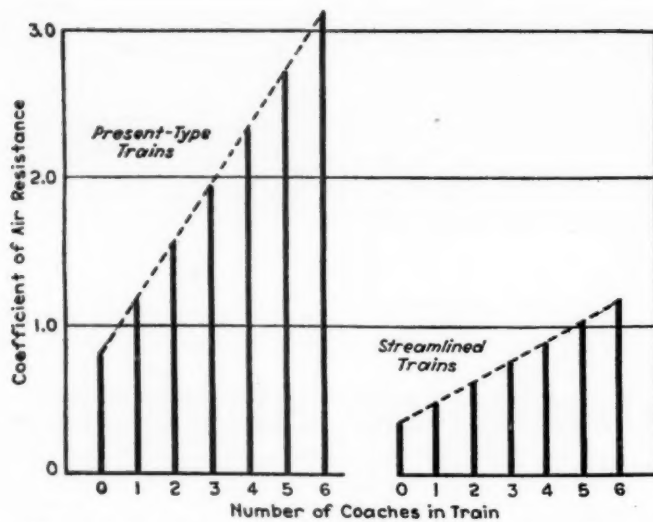


Fig. 3—The Comparative Air Resistance of Various Trains

Germany. This time an endeavor was made to obtain the high speed by decreasing the train resistance rather than by increasing the motive power, as was done in the Zossen tests mentioned. The results of tests recently made with a new type of railway coach, designed by Fr. Kruckenberg, and having a small total resistance, proved that in their method the investigators are on the right track. The fact that this coach is driven by a modified airplane propeller is, with respect to the speed obtained, only of minor importance.

The new coach is light in weight (20.6 tons), low in center of gravity, and streamlined, all of which are departures from conventional railway practice. The speed made on an actual run of 173 miles between two large cities was 106 m.p.h. with a top speed of 143 m.p.h., and the run was better by four minutes than the regular passenger-airplane time.

One of the most interesting facts regarding this new German high-speed train is its low energy consumption per mile, chiefly due to its streamlined shape. The coach, carrying 50 passengers, travels 4 miles to the gallon of gasoline. How good an economy this is will be appreciated when it is stated that the power required for coaches of the present type varies almost as the cube of speed; so that an increase of speed from 40 m.p.h. to 100 m.p.h. means a more than tenfold increase in the power required for a coach of a given shape and weight.

If the train is to undertake to compete with the airplane in speed, as seems now to be the next logical development, it is important that the railroads give attention to the design considerations that make the high-speed operation of trains possible without appreciable sacrifice in safety and economy. If the railroad companies do seriously consider this matter of high-speed operation of trains, they will need to evolve some new type of streamlined, light-weight train, and probably make even other radical departures from present practice.

However, even if it be considered inadvisable to increase the speed of trains at the present time, it will be shown later that with existing speeds air resistance is the predominant factor, and that from an economical standpoint, streamlining of our fast trains is justified, as is also that of some of our high-speed interurban cars.

For sake of brevity, consideration of the problem of air resistance will be confined here mainly to the case of a train of fixed length—given by that of a locomotive and six coaches—and to that of a single car, as used

in frequent schedule service, such as is operated on interurban lines.

Wind-Tunnel Tests on Trains

When the senior author came to the United States about three years ago in order to organize research work on hydrodynamics and aerodynamics at the Westinghouse Electric & Manufacturing Co., East Pittsburgh, he soon realized the great importance of faster transportation in this country. Finding that concern closely connected with the railway business, the development of new features of design of electric locomotives, coaches, and interurban cars was taken under consideration.

The work was started about two years ago by the building of a special wind tunnel for testing models of present-type trains and interurban cars as well as those of a streamlined shape about 1/25 the actual size.

Generally, in constructing the models, a duplicate was made of each train and the two trains assembled as shown in Figs. 1 and 2. This assembly, known as the "mirror method," was used to make the air flow symmetrical about the plane of the imaginary ground, and thus to preserve closely the character of the flow lines occurring with actual trains. From the resistance obtained in testing these assembled duplicates, of course, only half is to be taken for the resistance of a single model. For single cars, such as interurban cars, it was found by experiment that a flat plate parallel to the air flow will give the effect of ground upon a moving train, but with models of long trains the stagnation of air due to a plate stationary with respect to the models would have been objectionably large for the rear cars.

The suspension of the train models in the wind tunnel, and the testing of the air resistance of the models and suspension, and then of the suspension separately to get the air resistance of the models alone, followed conventional practice in these matters. The sensitivity of the test arrangement was sufficient to make the systematic error in the reading of the instruments only about one to two per cent. Damping devices on the torsion balance and on the manometer permitted mean values being read. The tests were made with a range of air speeds of from about 40 to 70 m.p.h.

Air Resistance of Trains

The results of the tests with trains are summarized in Fig. 4. The tests were made on models of a locomotive alone and with one and two coaches for both

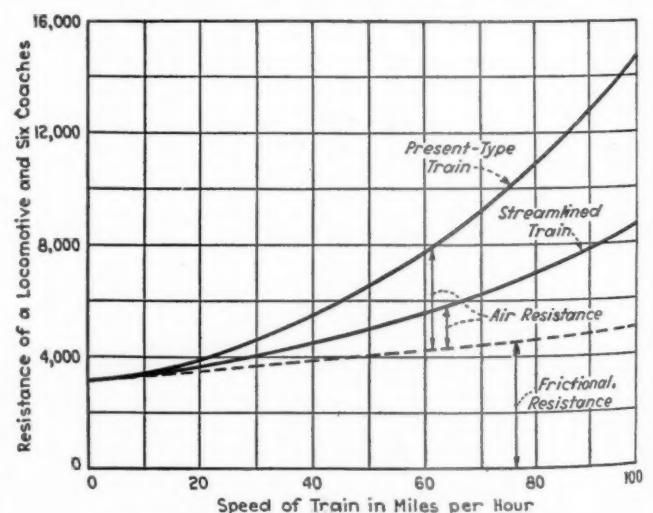


Fig. 4—Resistance in Pounds of Full-Sized Trains as Calculated from the Model Tests

Weight of locomotive, 145 tons; weight of each coach, 75 tons; total train weight, around 600 tons—Projected area 126 sq. ft.

types of trains. In Fig. 3 the test results have been extrapolated to trains of six coaches. A straight-line extrapolation was assumed to be permissible owing to the fact that practically no difference could be detected between the air resistance of the first and the second coaches in either of the train models.

The values of coefficient of air resistance shown in Fig. 4 are, if anything, probably somewhat high if used for full-sized trains, and especially so for the streamlined trains. The reason is that in the streamlined models most of the resistance is surface resistance, and owing to the complexity of the present-type models, the models, all of the same smoothness of surface, were not smooth as, with more expense, they might have been made. However, the streamlined locomotive, after having been fitted with a streamlined rear part, was tested before and after being highly waxed and polished, and a reduction of over 40 per cent in the air resistance was obtained simply by this change in smoothness of surface.

Since this paper deals only with tests on air resistance, certain assumptions had to be made regarding the frictional resistance in order to determine the total train resistance. After considering various methods of calculating the frictional resistance, the method of A. H. Armstrong was finally adopted: namely,

$$R_f = 50 \sqrt{W} + 0.03 W \times V$$

where R_f is the frictional resistance in pounds, W the weight of a car in tons, and V the speed of the train in miles per hour.

From this expression for the frictional resistance and from Equation [2]*, in which the coefficients of air resistance obtained from the wind-tunnel tests were introduced, the curves of train resistance of Fig. 4 were drawn, and from these the curves of Fig. 5 showing the power requirements of the trains were readily obtained.

To find the significance of the curves of Fig. 5 for the passenger on the one hand and for the railroads on the other, it is necessary to convert them into expressions of dollars and cents' economy.

The passenger is interested in the effect of streamlining and high speed upon the cost of travel per passenger-mile, and the railroad is interested in the comparative earning power of the alternative investments required by streamlined and non-streamlined equipment, everything considered.

* Equation [2] is given by the authors as follows: Air resistance = $c \frac{\gamma}{2g} A_1 V^2$, in which c , determined by the wind-tunnel tests, depends largely on the shape of the train; γ is the specific weight of the air and g the specific gravity; A_1 is the cross-sectional area of the train, and V is its velocity.

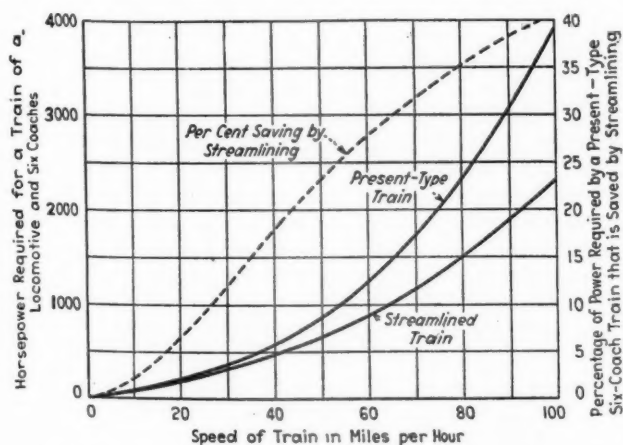


Fig. 5—Power Requirements of Full-Sized Trains as Derived from Fig. 4

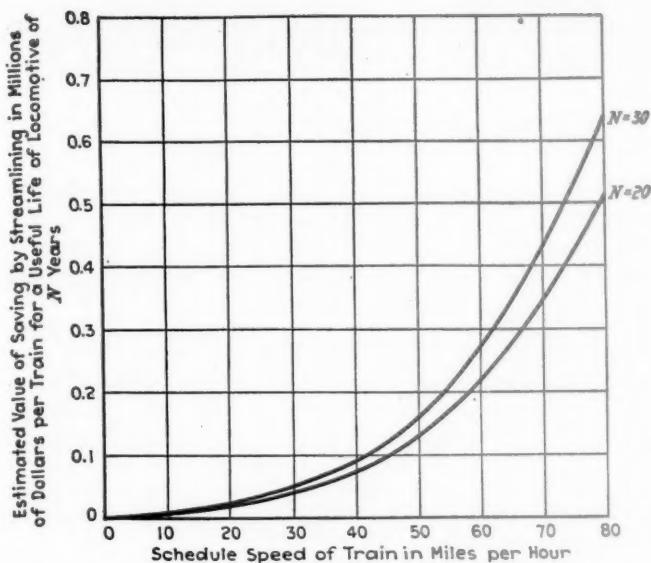


Fig. 6—The Estimated Value of Adopting Streamlining for High-Speed Trains

It is not possible in an elementary study such as the present one to consider in detail or with great accuracy all of the items that enter into the economy of streamlined trains and high speeds over present-type trains and present speeds, but it is possible to show, by giving approximate values to the more important items, that high-speed, light-weight, streamlined trains have sufficiently great economic advantages over present trains amply to justify, apparently, any railroad in adopting them wherever the existing track, right of way, schedules, etc., permit high speeds of, say, 80 m.p.h.

It will be necessary first to justify the use of high speed for trains by considering the cost of high speed to the passenger per mile, after which it will be significant to inquire into the difference in capitalization required for present-type and streamlined trains operating at the same high speeds.

Such difficultly determined items as the saving in labor overhead due to the higher schedule speed, and the increased cost of track maintenance due to the same cause, will not be considered here in figuring the net cost of high speed to the passenger. The items considered will be those due to changes in power rating of the locomotives with increases in schedule speed. For electric operation these items are the expenses due to increased energy consumption of the train, to increased cost of the locomotive, and to increased cost of the electric transmission system.

In estimating the expense of increased energy consumption with increased speeds a number of assumptions must be made, for which the following values are offered as reasonable for approximate purposes: Let the cost of electric energy at the car wheels be 1.5 cents per kw. hr. Let the average annual mileage of the

train be $100,000 \times \frac{V_s}{40}$, where 100,000 is in round num-

bers the mileage of present passenger locomotives, and V_s is the schedule speed of the train in miles per hour. Since the average resistance of a train for a distribution of speeds about a schedule speed is for any ordinary distribution equal within a few per cent to the resistance at the schedule speed, let the resistance at the schedule speed be taken as the average resistance of the train. If C_A is the annual cost of electric energy per train and P_s is the horsepower required at the schedule

speed by either a streamline or present-type train, as given by Fig. 10, it can shown that

$$C_A = \$28,000 \times \frac{P_s}{1,000}$$

To find the annual fixed charge C_B per train due to the cost of the locomotive, assumptions such as the following may be made: Let the weight of a locomotive vary directly as its power rating for a fixed voltage, with a 150-ton locomotive developing 2,500 hp. continuous rating, and let the cost of the locomotive vary directly as its weight according to the approximate formula of 50 cents per lb., with or without streamlining. Let the annual straight rate on the locomotive investment to cover interest, taxes, depreciation, insurance, and incidentals be 15 per cent. Let the locomotive have a sufficient power rating to maintain continuously on a straight, level track a train speed of 1.4 times the schedule speed of the train. Then

$$C_B = \$12,600 \times \frac{P_s}{1,000}$$

If it is assumed that the ratio between the cost of the transmission system for an electrified railroad, including substations and overhead lines, to the cost of the electric locomotives will, for present purposes, be 2:3, with an annual rate for figuring fixed charges of 15 per cent, the total annual cost C_{ABC} of the three items that have been considered will, in round numbers, be

$$C_{ABC} = \$50,000 \times \frac{P_s}{1,000} \dots\dots\dots [3]$$

While it is probable that the next developments in increasing the speed of trains will come gradually as in the past, it is of interest to calculate the cost in cents per passenger-mile of an increase in schedule speed to as high as 100 m.p.h. from a schedule speed of 40 m.p.h., for at such a high speed the train would be comparable to the airplane in speed. Assuming, therefore, an increase of schedule speed from 40 to 100 m.p.h., it is found from Fig. 6 that for a streamlined train the additional horsepower required ($P_{s2} - P_{s1}$) is 1,800. Assuming that for day-coach travel the average number of passengers per coach is 30, the cost of this additional speed to the passenger per mile can readily be figured from Equation [3] to be 0.2 cent. For sleeping-car passengers, the additional expense would be somewhat greater. This additional expense per passenger-mile is obviously so small compared with the advantages of high-speed travel that the railroads ought to be able to recover it many times over by the increased patronage of the public if the latter are offered this new mode of travel at little or perhaps no increase in fare. The rate for cross-country travel by airplane is at present (1931) about 6.5 cents per passenger mile on a railway-mileage basis, with a schedule speed on the same railway mileage basis of usually between 100 and 120 m.p.h.

It is interesting, now, to find the capitalized value of the saving effected by streamlined trains over present-type trains for different schedule speeds up to 100 m.p.h. The life of an electric locomotive is variously estimated for depreciation purposes to be from 20 to 30 years. Taking an interest rate of 5 per cent for finding the present worth of an annuity, capitalization factors of 12.5 and 15.4 are, respectively, obtained for annuities running 20 and 30 years. Using these factors to capi-

talize the annual savings to be found from Equation [3] and Fig. 5, the curves of Fig. 6 are obtained. It should be noted that these are for the savings obtained by streamlining of the kind shown in Fig. 2, and hence do not take into account the savings possible by reducing the projected area of the trains by lowering the height of the trains. Neither do they take into account the savings possible by reducing the weight of the trains.

The savings in power consumption made possible by streamlining could be utilized to bring about some of the improvements proposed by Egmont Arens in a recent article entitled "The Train of Tomorrow."* Air conditioning, it is believed will be one of the most desirable of these.

Of course it is beyond any dispute that existing rolling stock cannot be scrapped merely to replace it with streamlined equipment. However, it should be clearly understood that railroad companies anticipating the future development of high-speed trains should start now to build experimental trains of streamlined shape, in order to acquire the experience necessary for the final design of the trains of tomorrow.

As the authors see it, the question is not whether the streamlined shape will be adopted, but when this will happen and who will be the first in this new field of modern transportation.

* Advertising Arts (Supplement of Advertising and Selling), July, 1931.

I. C. C. Fuel Hearings Resumed at New York

HEARINGS in connection with the Interstate Commerce Commission's investigation of railway fuel practices—part I of the general Ex Parte 104 inquiry into practices affecting operating revenues and expenses—were resumed on February 1 at New York where they are scheduled to continue until February 18. Opening sessions of these hearings, which are being conducted by Examiner C. W. Berry and Attorney M. C. List, were held at Norfolk, Va., October 28-30, 1931, and were reported in the *Railway Age* of November 7, 1931.

Carriers responding at New York, following generally the lead of roads appearing at the previous sessions, are dividing the information presented in the direct testimony of their witnesses into five parts, using for this purpose the headings supplied by the I. C. C. in its "Notice of Information To Be Sought at Hearings." These headings, together with references to the nature of direct testimony and cross-examination presented under each, will be discussed in turn.

(1) The methods pursued by respondents in the selection of fuel. This in general relates to the broad basis upon which coal producing areas are selected as suitable sources of locomotive fuel: Whether it is the policy to buy all fuel from on-line mines; what determines the selection of one coal field as against the other; what general types of coal have been found to be best suited to locomotive use and what variations if any exist between coal from different fields or from different mines in the same field. The first roads to appear at New York—the New England lines—serve no coal mines and the testimony of their witnesses was that they buy the desired grade of coal at the cheapest possible price considering rail or water freight charges to the on-line point where delivery is taken. Testimony

relating to the types of coal best suited to locomotive use indicated that each road has very definite preferences in this matter. The witness for one road would defend a coal only to be followed by the representative of another line who would repudiate the same coal. This conflict, revealing that what one swore by the other swore at, gave Examiner Berry some concern but a B. & M. witness maintained that differing local conditions would explain the matter.

(2) The methods used by respondents in allocating their fuel orders. This relates to the manner in which the total fuel requirements of a railroad are parceled out among the several mines or brokers which are patronized. Specifically, in this connection, the commission is interested in determining whether or not fuel orders are based on commercial coal traffic received; whether brokers, instead of producers, are patronized by non-coal roads for traffic reasons. Only the Boston & Albany, of the first six New England roads to appear at New York, admitted any relation between fuel purchases and commercial coal traffic; others such as the Bangor & Aroostook, the Boston & Maine, the Maine Central and the Rutland have in the past established with New England coal brokers contacts which have become virtually permanent relationships. The Central Vermont also buys through brokers but has shifted its patronage more than the others. The B. & A., in so far as possible, secures its fuel from mines local to the New York Central and allocates its orders among the five or six New England brokers which are the largest B. & A. shippers of commercial coal; the New York Central takes no interest in this allocation among brokers.

(3) The basis on which prices paid for fuel by respondents are fixed. In this connection all New England roads, suitable quality of coal considered, endeavor to obtain the lowest possible price on coal delivered at their junction or at their tidewater receiving point. The Bangor & Aroostook, the Boston & Maine, the Maine Central, the Central Vermont and the Rutland invite bids on their requirements for the fuel year beginning April 1; the Boston & Albany fixes the price it will pay and asks each broker, whose commercial traffic entitles him to a fuel order, if he would like to furnish a specified tonnage at the fixed price. The Bangor & Aroostook, which has been buying all its fuel from the Hutchinson Coal Company, does not reveal the low bid it receives but, in the light of information contained in the bids, "makes an offer" to Hutchinson. The Boston & Maine received lower bids but, because of the quality desired, it awarded its latest contracts to the New England Fuel & Transportation Company and C. H. Sprague & Sons, the latter a coal and ship broker, selling Island Creek Coal Company coal.

The Maine Central is at present obtaining its coal under a three-year contract with C. H. Sprague & Sons, which contract, effective May 1, 1931, supplanted a four-year contract covering fuel at a higher price until April 1, 1932. The Central Vermont awards its contracts on the basis of competitive bidding; it has occasionally permitted a broker to revise a bid but it does not like to as such actions "discourage competition." The Rutland has an arrangement with the George Hall Corporation of Ogdensburg, N. Y., a lake boat operator, whereby Hall, acting as broker, procures for the railroad the coal from the mine submitting the lowest price offered to the Rutland in response to its call for bids. During the navigation season the Rutland fuel moves rail-lake and is handled on the boats of the Hall Corporation. Also, in connection with the fixing of prices, Mr. List was interested in determining whether or not

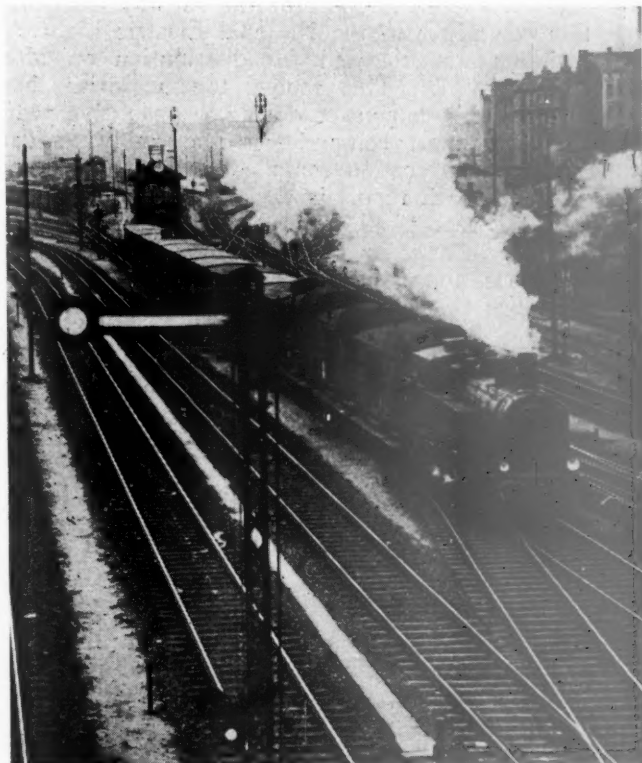
contracts included a wage clause giving the railroads the benefit of any wage reductions in the coal fields. Some roads did require the wage clause while others did not; some also had a "gentleman's agreement" whereby they got the benefit of any lower price at which the same coal was sold to another railroad.

(4) The inspection of fuel by respondents. Under this heading the evidence relates to inspections, tests and analyses made to assure a suitable grade of fuel. Cross-examination on the matter has been going into the B.t.u. requirements, the minimum ash content tolerated, the fusing point, etc. While some roads make regular chemical analyses the more common practice of the first lines appearing at New York is to rely on inspection and observation of preparation at the mines, past experience and reports of traveling engineers and firemen as to actual performance in the fire box.

(5) The practices of respondents in distributing and accounting for fuel. This covers the on-line handling of fuel, whether or not it is back hauled to fueling stations from destinations which would give the foreign lines a smaller division of the through rates. It also covers fuel disbursement accounting and most witnesses are asked in this latter connection if the recommendations of the Railway Accounting Officers Association are followed.

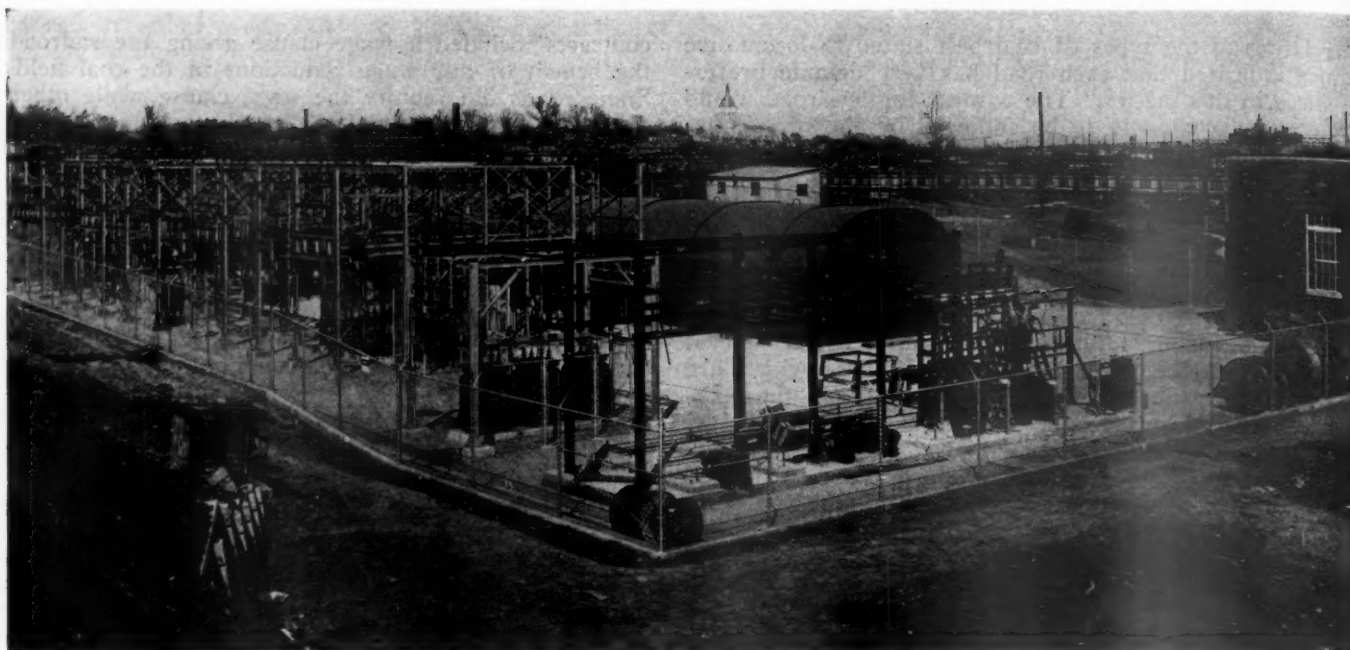
The bulk of the testimony was submitted by purchasing agents although some of the roads produced fuel inspectors, operating men and accounting officers. Other information sought by the commission was submitted in exhibit form; this latter included a map of each railroad showing coal receiving stations and distributing points, maps of coal producing areas, statements tabulating bids received for fuel, statistics of fuel performance, etc. The principal bases on which Attorney List proceeded with the inquiry were the responses made by the railroads to questionnaires issued by the Commission on August 5, 1931.

* * *



Courtesy German Tourist Information Office, New York

A Freight Train Leaving a Station of the German Railroads



Reading Substation at Wayne Junction, Pa., Which Employs 15,000 Kw., Outdoor-Type Frequency Converters

Electrification of Steam Railroads

A report of the progress of electric traction and a study of the energy requirements

THE 1931 annual report of the railway electrification committee of the National Electric Light Association was released for distribution on Monday, February 1. This report, together with those compiled by this committee during the past five years, represent the most comprehensive assembly of data concerning electrification compiled by any association. The scope of each report is varied from year to year. In the 1931 report, all railway electrifications in the world are tabulated by countries showing the extent, type, reasons and results. The progress of electrification since the last annual report is described and illustrated. The appendix constitutes a concise history of electrification in the United States from 1895 to 1931 and contains a study of the use and supply of energy for electrified railroads in the United States.

Work of the Year

The first half of the report is presented under the general title of "Work of the Year." Installations of electric traction are arranged alphabetically and in each case the work completed, in progress and in contemplation, is listed. Mention is also made of innovations, such as the 3,000-volt cars and rectifiers on the Lackawanna, the large horsepower (1,250) per axle of the Pennsylvania locomotives, the mobile electric power plants used on the Buenos Aires Great Southern Railway which act as locomotives and also supply power to motor cars in the train, the Hungarian State Railway locomotive designed to operate on the frequency of commercial power systems, the Nordmark-

Klaralven (Sweden) gas-electric motor car with differential axles, and the dining car of the Rhaetian Railway in Switzerland equipped for electric cooking.

A new and complete table covering mileage of electrified steam railroads of the world is contained in the report and is reproduced herewith as Table I. It in-

Table I—Electrified Steam Railroad Mileage of the World

Country	Electric Mileage		
	Route	Main Track	All
United States.....	2,055.28	3,596.79	4,910.85
Algeria	67.20	67.20	87.50
Argentina	60.47	138.94	173.27
Australia	260.76	567.72	701.44
Austria	563.74	794.27	926.63
Bolivia	5.28	6.52	8.70
Brazil	250.98	272.10	318.52
Canada	39.87	70.74	107.39
Chile	207.91	242.37	364.73
China	25.00	25.00	100.00
Cuba	155.74	210.93	278.78
Czechoslovakia	30.50	46.50	58.00
France	1,045.76	1,735.77	2,233.97
Germany	972.29	1,647.37	2,372.88
Hungary	41.00	82.00	106.00
India	221.64	454.72	688.66
Italy	1,078.90	1,619.92	2,218.40
Japan	247.63	441.16	568.53
Mexico	78.91	81.39	89.48
Morocco	193.26	193.26	237.37
Netherlands East Indies.....	70.00	127.00	165.00
Netherlands	83.89	167.78	217.49
New Zealand.....	14.81	14.81	28.24
Norway	143.81	164.94	252.57
Spain	369.15	559.98	649.64
Sweden	725.87	790.87	1,039.32
Switzerland	1,542.37	2,105.42	2,929.51
Union of Socialistic Soviet Republics.....	71.00	82.00	100.50
Union of South Africa.....	198.88	275.61	374.30
United Kingdom.....	473.60	1,122.18	1,234.23
Venezuela	22.68	22.68	24.85
Total	11,318.18	17,727.94	23,566.75

cludes a few estimates, but these do not introduce errors of any consequence to the totals and the table is probably the most complete compilation of its kind available.

Electric traction activity outside the United States is summed up in the report about as follows:

Algeria and the Union of Socialistic Soviet Republics have been added to the list of countries having electrified railroads and one new electrically operated railway appears in India. Considerable additional mileage was electrified in Argentina, Austria, France, Hungary, India, Italy, Japan, Morocco and the United Kingdom. Two electrifications in the Netherlands and the United Kingdom inaugurated service in 1931. Two short lines of the Swiss Federal Railways that had operated at odd voltages and frequencies have been changed to the standard system of 15,000 volts and 16-2/3 cycles. The Swiss Federal Railways now have a continuous electrified network embodying more than 1,070 miles of route and 2,350 miles of all tracks, all of which uses the same kind of current. This is a situation not equalled elsewhere, as regards either standardization or the extent of continuous electric trackage. In several countries, new projects or extensions were announced, including Austria, China, Czechoslovakia, Denmark, France, Germany, Hungary, Italy,

Japan, New Zealand, Spain, Sweden and Union of South Africa.

Use and Supply of Energy

The appendix, which constitutes the second half of the report, contains the results of a study made of the use of electric energy on all electrified railroads in the United States. A short description is given for each section electrified, of the class of service rendered, and the types of motive power used. This is followed in each case by a description of the power facilities, including the following details: Sources, transmission, distribution, sub-stations, ownership and operation. The text is well illustrated with photographs and a map is included for each electrified section which shows stations served and the location of power substations. A table, included herewith, as Table II, has been compiled from the results of the study which shows how individual railroads purchase and generate power for traction purposes.

The committee is composed of 30 members, including 11 railroad representatives, 12 from power companies, 4 from engineering companies and 3 from manufacturing companies. The chairman is Britton I. Budd, president of the Public Service Company of Northern Illinois, Chicago, Ill. The secretary is Horace H. Field of the same company. The vice-chairmen are E. W. Lloyd, Commonwealth Edison Company, Chicago, Ill., F. W. Doolittle, The North American Company, New York, N. Y., and D. J. Brumley, Illinois Central Railroad Company, Chicago, Ill. Reports are compiled by the secretary at 72 West Adams Street, Chicago, Ill.

Table II—Sources of Power Supply for Electrified Railroads in the United States

Name and Location	Generating Plant	Purchase from Other Railways	Purchase from Power Companies
Baltimore & Ohio R.R.			
Baltimore Tunnel.....	O	O	X
Staten Island Lines.....	O	O	X
Boston & Maine R.R.			
Hoosac Tunnel.....	O	O	X
Boston, Revere Beach & Lynn R.R.			
Boston and suburbs.....	O	O	XX
Butte, Anaconda & Pacific Ry.			
Butte-Anaconda.....	O	O	X
Canadian National Rys.			
St. Clair Tunnel.....	O	O	X
Chicago, Milwaukee, St. Paul & Pacific R.R.			
Rocky Mountain Division.....	O	O	X
Coast Division.....	O	O	XX
Great Falls Yard.....	O	O	X
Cleveland Union Terminals Co.			
Cleveland Terminal.....	O	O	X
Delaware, Lackawanna & Western R.R.			
New York and suburbs.....	O	O	XXX
Wallabout Yard.....	O	O	X
Erie Railroad			
Rochester-Mt. Morris.....	O	O	X
Ft. Dodge, Des Moines & Southern R. R.			
Central Iowa.....	X	O	O
Great Northern Ry.			
Wenatchee-Skykomish.....	O	O	X
Illinois Central R. R.			
Chicago and suburbs.....	O	O	XX
Long Island R. R.			
New York and suburbs.....	O	X	XX
Bay Ridge freight line.....	O	X	X
Michigan Central R. R.			
Detroit River tunnel.....	O	O	X
New York Central R. R.			
New York and vicinity.....	X	(*)	†(X)
New York, New Haven & Hartford R.R.			
Nantasket Beach.....	O	O	X
Providence-Fall River.....	O	O	X
New York-Woodlawn.....	O	X	O
Woodlawn-New Haven and branches			
Westchester line.....	X	(*) (X)	XX
New York connecting line			
Norfolk & Western Ry.			
Bluefield-Iaeger.....	X	(X)	(X)
Northwestern Pacific R. R.			
Marin peninsula.....	O	O	X
Pennsylvania R. R.			
Camden-Atlantic City.....	O	O	X
New York and vicinity.....	X	(X) (*)	X
Philadelphia and suburbs.....	O	O	X
Reading Company			
Philadelphia and suburbs.....	O	O	X
Southern Pacific Co.			
East Bay cities.....	X	O	O
Virginian Railway			
Mullens-Roanoke.....	X	(X)	O

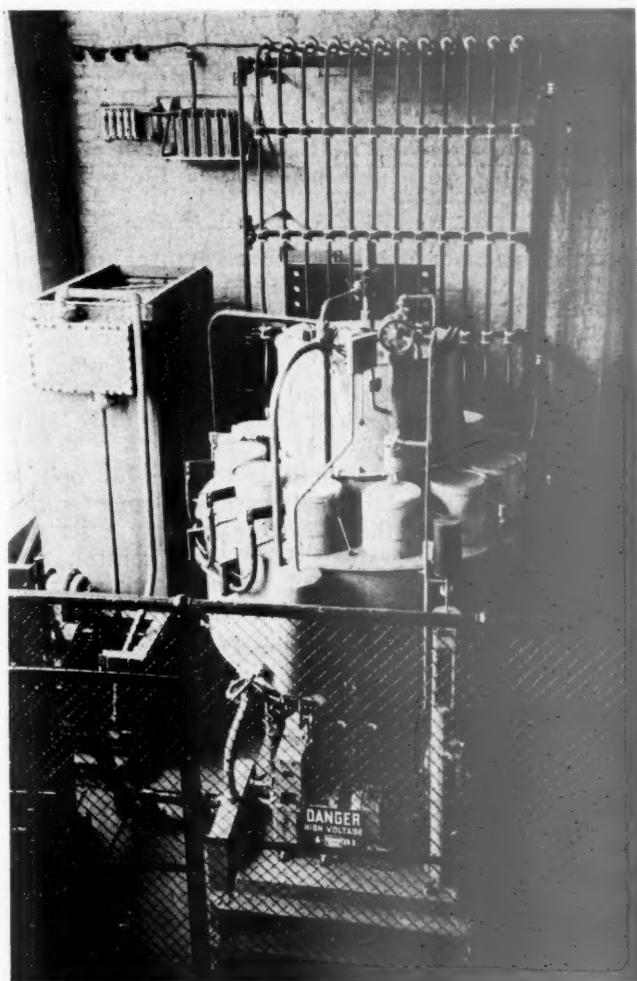
X = Source of energy, a railway or a power company, respectively. Repetition of X shows additional companies participate in furnishing energy.

O = No source like this column.

() = Source of energy or interchange energy.

* = Source is an electric railway company.

† = Light and power for buildings in Terminal District are purchased from power company to relieve load on railway's generating plant.



One of the Lackawanna, 3,000-Volt, 3,000-Kw., Mercury-Arc Rectifiers

Roads Assent To New Section 15a

Ask repeal of recapture and valuation provisions—

Reach accord with commissions and shippers

By Harold F. Lane

Washington Editor, Railway Age

WASHINGTON, D. C.

THE Association of Railway Executives, Interstate Commerce Commission, shippers and state commissioners have finally reached a general accord on the principle of a "flexible" rule of rate-making, including neither valuation, rate-base, percentage nor recapture, which Congress is being asked to substitute for Section 15a of the interstate commerce act.

Congress is yet to be convinced of the exact language to be substituted for the present section, that for many years has represented little more than a hope, but the fact that the organizations most interested have finally been able to come so near to an agreement has created a situation which makes the prospects for legislation more favorable than they have been.

Assent to the idea of a flexible rate rule, provided that it shall recognize the revenue needs of the carriers in such a way as to make it clear that Congress intends no reversal of the general policy expressed in the 1920 legislation, was expressed at the hearing before the House committee on interstate and foreign commerce on January 29 by S. T. Bledsoe, chairman of the executive committee and general counsel of the Atchison, Topeka & Santa Fe, and a more specific presentation of the railroad views was given on February 2 and 3 by Alfred P. Thom, general counsel of the Association of Railway Executives. Mr. Bledsoe's statement was directed mainly to a demonstration of the unfairness of the recapture law.

Mr. Thom, speaking for the association, also strongly urged retroactive repeal of the recapture provisions, which he said are now recognized as a "legislative blunder" and said that if they are disposed of there is no necessity for a valuation. He said that rates cannot be made on the basis of value, rate base or formula, but must be made with reference to economic considerations, and he opposed the "artificial rate base" proposed by the commission in H. R. 7116.

Mr. Thom told the committee that in his opinion both value and rates are matters of judgment rather than of formula and that no one can apply a set percentage to the considerations which must control. Students of economics are agreed, he said, that rates are not made by bases or valuations, but by the estimate of the rate-making body of the economic conditions of the country. Rates must be made to move traffic, and the primary function of a valuation is as a measure of confiscation. If there is any rate base, he said, it has been held by the Supreme Court for thirty years that it is "present value," but the interest of the carriers is in the result. "Rates are made by economic necessity. If they are made by government authority you can contest them on the ground that they don't give a fair return but no ukase of arbitrary power can alter economic laws. The commission's rate base plan in H. R. 7116 involves serious constitutional questions. Why put in the law a provision as to a rate base which we think cannot be sustained and upon which the com-

mission cannot make rates? I shall ask this committee to consider the repeal of the valuation statute. I am definitely of the opinion that the only present office of valuation is as a measure of recapture. If you do away with that you do away with the necessity for valuation. If then a valuation is introduced it must be introduced and proved by the one who claims the results are confiscatory."

It is probable that Congress could be rather easily persuaded to repeal Section 15a but that it would be difficult to persuade it to abolish the recapture plan without repealing the rest of the section. The problem, therefore, is to induce it to substitute satisfactory language for the more or less mathematical formula of the present law. While each of the organizations represented at the hearings before the House committee has proposed somewhat different amendments to the bill it is believed that the differences can be reconciled.

Section 15a has survived a long series of hostile attacks designed to repeal it outright, sponsored by members of Congress with more or less radical leanings who were not particularly concerned about putting anything in its place. The substitutes now advanced, however, represent the views of those who desire a more workable statute, although some of them also undoubtedly believe that they would result in lower rates than would be required by a strict observance of 15a, and the bills before the committee would leave the matter largely in the discretion of the commission. Although Section 15a did not originate with the railroads, but with the National Association of Owners of Railroad Securities, and its principle was opposed by the roads in 1919, it was accepted after it appeared to be the best that could be obtained. They have also until now opposed the various proposals for its repeal which would have either provided nothing in its place or would have substituted something which they would regard as worse, such as the Howell bill or the "rate base" plan recommended by the commission last year.

Up to now the Association of Railway Executives has refrained from offering any substitute of its own but in the alternative proposal drafted by Commissioner Eastman for the House committee and introduced by Chairman Rayburn as H. R. 7117, it has found possibilities which it can accept with some amendment. Commissioner Eastman has also stated that House Bill 7117 is preferred by all the commissioners except Mr. McManamy to the "rate base" plan in H. R. 7116, which was proposed by the commission last year, and unqualified opposition to the rate base plan has been expressed on behalf of the National Industrial Traffic League and the state commissioners' organization as well as by the railroads, so that it has no more friends than 15a. All of these organizations are also in favor of the retroactive repeal of the recapture provisions, which Mr. Rayburn proposed to repeal only for the future, and of an amendment of the valuation law to

relieve both the railroads and the commission of the requirements that the original valuation be brought up to date "in like manner."

Organizations Differ on Exact Language

The only differences between them involve the language to be used in a general legislative direction to the commission to try to maintain an adequate rate level. The commission and the shippers' league have said they are willing that the law shall specify some of the factors to be considered by the commission, including railroad credit, in prescribing just and reasonable rates, although Commissioner Farrell is in doubt about the wisdom and desirability of emphasizing good credit. The state commissioners are opposed to any mention of this or other factors to be considered by the commission although they have no objection to language to make clear that no reversal is intended of the policy of adequate maintenance for a national transportation system.

Bledsoe Urges Recapture Repeal

In advocating unconditional and retroactive repeal of the recapture provisions Mr. Bledsoe found himself in agreement with Commissioner Eastman, R. C. Fulbright, chairman of the legislative committee of the National Industrial Traffic League, and John E. Benton, general solicitor of the National Association of Railroad & Utilities Commissioners, and expressed his appreciation of the fairness with which they had dealt with recapture, although he said he was unable to agree with some of their statements.

The assumptions upon which the enactment of the act was justified have never been realized, he said, and have ceased to be even assumptions. It was assumed that the commission would so adjust the general level of rates that the carriers as a whole would earn an aggregate annual net railway operating income equal to a fair return upon the aggregate value of the property, and that as a result a number of the carriers would receive a return in excess of 6 per cent. However, the commission has not prescribed rates which have permitted the carriers as a whole to earn in any year the fair return fixed either by the statute or by the commission, and he submitted the accompanying table showing the rate of return earned by the carriers upon the value found by the commission in Ex Parte 74, plus net expenditures for additional properties since, and the amount in each year from 1921 to 1931, inclusive, by which the carriers have failed to earn $5\frac{3}{4}$ per cent upon such value. The average return for the period, he said, was 4.33 per cent for the roads as a whole, 4.58 per cent for the eastern roads, 4.37 per cent for the southern roads, and 4.05 per cent for the western roads,

and the total amount by which the roads failed to earn 6 per cent was \$4,064,000,000.

Some roads have, in a few years, when a large volume of traffic moved, earned in excess of 6 per cent, Mr. Bledsoe said, although it is doubtful if any carrier has earned a fair return for the entire period, and the carriers as a whole have failed by perhaps more than three billion dollars to earn the fair return prescribed by the act and by the commission. If a carrier has failed to earn a fair return for this period, it is manifestly unfair to further increase its deficit below a fair return by requiring the payment by it of one-half of its excess income in some particular year.

Atchison System Below Average Fair Return

On May 3, 1927, the commission valued the properties of the Atchison, Topeka & Santa Fe system lines as of June 30, 1916, at 1914 prices, but no subsequent valuations have been completed. It has indicated that of the years 1920 to 1931, inclusive, there is sufficient reason to believe that the Atchison system lines received excess income in 1920, 1926 and 1929 to justify valuing those properties for such years, in order to determine whether they earned excess income. In the absence of a valuation for the years involved, Mr. Bledsoe said he had a computation made of the net railway operating income of the system lines and a statement of their investment in road and equipment, as policed by the Interstate Commerce Commission, for the last four months of 1920 and for the years 1920 to 1931, inclusive. This discloses that in only two years did the system lines have excess income, that in those two years the aggregate of such excess was \$6,364,925 and that for the entire period of 11 years and 4 months, the lines failed by \$127,191,741 to earn 6 per cent upon the investment. If they were required to pay one-half of such excess for the two years in which they had excess earnings, the amount by which they will have failed to earn a fair return for the entire period will be increased to \$130,374,204. If Section 15a is not to be repealed retroactively, then the entire 11 years and 4 months period should be averaged for the purpose of ascertaining excess income.

"The expenses incurred by the Atchison system lines in connection with the valuation of their properties for the years 1921 to 1931, inclusive, the major portion of which was incurred in connection with proposed recapture, aggregates \$4,944,718, and the beginning of the end of such expenses is not yet in sight, unless the recapture clauses of Section 15a are retroactively repealed."

Mr. Bledsoe said he was not blaming the commission for the necessity of making such expenditures. The necessity is imposed by Section 15a, but he said, "with

Rate of Return on Property—Class I Steam Roads in the United States

Calendar year	Investment in road & equipment		Ex Parte 74 findings, plus net additions & betterments	Net railway operating income		
	Amount	Increase over prior period		Amount	Rate of return	Shortage under $5\frac{3}{4}\%$
1919	\$19,460,516,145		\$18,362,616,190			
1921	20,338,443,697	\$877,927,552	19,240,543,742	\$602,606,042	3.13%	\$503,725,223
1922	20,618,700,426	280,256,729	19,520,800,471	766,078,935	3.92%	356,367,092
1923	21,439,549,661	820,849,235	20,341,649,706	968,983,741	4.76%	200,661,112
1924	22,175,572,273	736,022,612	21,077,672,318	975,905,652	4.63%	236,060,506
1925	22,740,283,846	564,711,573	21,642,383,891	1,123,307,447	5.19%	121,129,627
1926	23,411,372,345	671,088,499	22,313,472,390	1,215,053,258	5.45%	67,971,404
1927	24,012,691,241	601,318,896	22,914,791,286	1,069,695,657	4.67%	247,904,842
1928	24,480,757,787	468,066,546	23,382,857,832	1,173,427,104	5.02%	171,087,220
1929	25,062,399,116	581,641,329	23,964,499,161	1,251,697,927	5.22%	126,260,775
1930	25,664,656,010	602,256,894	24,566,756,055	868,878,792	3.54%	543,709,681
1931				* 532,000,000	* 2.17%	880,588,473
Total—11 years						\$3,455,465,960

* Partially estimated to include returns for month of December 1931.

NOTE:—Investment data for 1931 are not yet available. The rate of return and shortage under $5\frac{3}{4}\%$ is computed on the base shown for prior year.

all due respect, I am of the opinion that in determining value for recapture purposes, it has given too much consideration to economic theories and dissenting opinions of Justices of the Supreme Court of the United States and too little consideration to the opinions of the court itself. The opinions of the Supreme Court seem to me to clearly establish that the original cost of a well planned and efficiently operated railroad is evidence of its value at the time of construction, and will continue to fairly well measure the amount to be attributed to the physical elements of the properties so long as there is no substantial change in the general level of prices of labor and material used in railroad construction. That when there has been a substantial change in the level of such prices, original cost ceases to have any probative effect as to present value and that in such case the present cost of constructing the property, less depreciation, if any, plus the present value of land is a fair measure of the physical elements of the property.

Commission Still Gives Weight to Original Cost

"An examination of the opinion of the commission in the Richmond, Fredericksburg & Potomac case, referred to by Commissioner Eastman as the second test case, indicates that the commission there purported to give probative effect to both original and reproduction cost. An analysis of original cost and the cost of reproduction figures and of the value found would indicate that about a sixty per cent probative effect was given to the cost of reproduction new of structures and equipment other than land, less depreciation, plus the present value of land, and forty per cent effect to original cost, less depreciation, of structures and equipment.

Status of Recapturable Income

Mr. Fulbright had been asked if a return of the recaptured funds would not be equivalent of appropriating an equal amount of money out of the Treasury of the United States. "It seems clear that the United States has no property interest in this fund and no power to appropriate the fund to its own use," Mr. Bledsoe said. "It also seems reasonably certain that the purposes for which the trust fund was created cannot be accomplished. It, therefore, would appear that the purpose of the trust having failed, the equitable owners of the trust fund are those who paid the money into such trust fund. Retroactive repeal would not affect a single taxpayer or a single ratepayer."

Replying to another inquiry as to whether carriers that may be held to have earned excess income in particular years had set apart and ear-marked such excess income, Mr. Bledsoe pointed out that whether any particular carrier will have excess income in any particular year depends upon so many uncertain factors it is only in an extreme case that the carrier could be certain there would be excess income for any period, and even in such a case the amount would be so uncertain it would be a mere guess. The setting up of an amount, even though it was a guess, on the books of the company as a reserve would be treated as a recognition that the sum so set up was payable, although the officers of the carrier might be quite certain that if correct principles of valuation were applied the amount subject to recapture, if any, would be much less than that ascertained upon the commission's somewhat fluctuating basis.

House Bills 7116 and 7117

"The carriers, generally, are I believe opposed to the substituting of a rate base for value as provided by

House Bill 7116. They believe the tendency of such an enactment would be to substitute a rate base for constitutional value and administrative discretion for judicial interpretation," said Mr. Bledsoe.

"House Bill 7117 gives no consideration to value or a fair return thereon, but requires the commission to give consideration to the transportation needs of the country and directs the commission, so far as practicable, to initiate, modify, establish and adjust rates so that the revenues therefrom will, under honest, efficient and economical management and reasonable expenditures for maintenance of way and structures, constitute a safe basis in the maintenance of a national system of railroad transportation. It recognizes that revenues fall with decreasing traffic in times of economic depression and rise with increasing traffic in times of economic prosperity, and that these changes shall not necessarily be regarded as requiring an increase or decrease in rates, but that the commission shall in the exercise of a sound discretion maintain, so far as possible, a general level of rates which will produce revenues consistent with such standard.

Substitute Should Recognize Revenue Needs

"My own judgment is that the repeal of section 15a without substituting therefor some provision recognizing the revenue needs of the carriers, will be treated by the investing public as an abdication by Congress of all interest in the financial welfare of the railroads. Such a course would further seriously impair railroad credit. In such event, public confidence in the ability of the railroad companies to pay the interest on their obligations and the dividends on their stocks will not be revived until the commission has demonstrated under the new rule of regulation its purpose to prescribe rates sufficient to yield the necessary revenue to accomplish the purposes specified in paragraph (2) of section 15a as it is proposed to be amended by House Bill 7117.

Pooling

"For Congress to authorize the Interstate Commerce Commission to require carriers to pool their earnings as provided in the first opinion in *Ex Parte 103* would seriously impair railroad credit. To authorize the commission to require a wisely located, conservatively capitalized and well-managed railroad, with a conservative dividend policy, to contribute any part of its earnings to the support of another or other railroads, the location, capitalization and dividend policies over which the first mentioned road has no control and for which actions and policies it has no responsibility, would impose such a hazard upon conservatism, efficiency and sound financial policies as to destroy the confidence of the investing public in even the strongest railroads being able to meet their fixed charges and pay dividends to their stockholders upon a conservative capitalization. I seriously doubt the constitutional right of Congress to impose such a requirement.

Litigation and Valuation Expenses

Mr. Bledsoe said the railroads feel keenly the expense incurred in connection with valuation and recapture and of the conduct of litigation in relation thereto, but that the questions involved are important and the amount of money involved very large and that "the commission has not yet adopted a constitutional basis for determining the value of the carrier properties. Therefore there must be more litigation before the commission gets around to following the mandates of the Supreme Court." "The carriers can hardly be

blamed for the institution of a law suit in which their contentions were fully sustained and the commission's valuation canceled," he said. "I agree with Commissioner Eastman that the best method of ending this litigation and expense is by the retroactive repeal of the recapture provisions of Section 15a, and the amendment of Section 19a so as to relieve the carriers from the commission's inventory requirements, leaving in the commission authority, however, to keep fully informed as to changes in property and property investment."

Rates Must Be Made to Move Traffic

Mr. Bledsoe said he had never thought rates ought to be made on the basis of constitutional value but that when it comes to testing rates or to taking away a part of a railroad's earnings it is necessary to have a valuation. He pointed out that the railroads have never sought to have rates based on the high values of 1920 and following years and said that if the recapture question is disposed of and the valuation act amended to omit the requirement of revaluation from time to time he anticipated no further litigation on the subject of valuation for rate-making purposes. He said that rates have to be made in the main so that they will move traffic.

Asked if the railroads' shortage under a fair return was due to the inadequacy of the rates or to business conditions, Mr. Bledsoe said he thought in some years it was due to business conditions and in others to the rates. Asked if he thought 4.33 per cent too low as an average for all roads, good and bad, Mr. Bledsoe said he had not mentioned that figure for that purpose but to show that it did not justify recapture, although he would hardly say that 4.33 per cent was a fair return, and most of the money raised by the railroads since the war had cost over 5 per cent. He said he thought the commission had not attempted to give the roads 5¾ per cent because it thought that traffic would not bear rates that high, and in reply to a question as to his own opinion he said that perhaps in some years they would have retarded the movement of traffic but that in others they would not.

Asked if the railroads could ever get back to the traffic of 1929 and if the traffic could bear a fair return, Mr. Bledsoe said that if it will not bear a fair return the only alternative is government ownership, but that if they should get back the average traffic of the years 1923 to 1929 they ought to be back on the road to prosperity. Representative Huddleston asked how they could do that if the traffic has not borne more than 4.3 per cent in a period of prosperity, without stopping highway and water competition. Mr. Bledsoe said it is not necessary to stop it but only necessary to charge the man who uses the highway or the waterway what it costs and allow the railroads to use the same facilities.

Mr. Bledsoe said he had never criticized the interstate commerce act or railroad regulation and that he believed that "to turn the railroads loose to charge what they saw fit would result in pandemonium and result in earnings less than they are now."

15a Originally Opposed by Railroads

Mr. Thom began his statement by recalling that the Association of Railway Executives had opposed the principle of Section 15a when it was before the House committee in 1919 and that the committee had then made an adverse report on it, but that the Senate had passed a bill containing the fundamentals of the section and it was adopted by the conferees and became a

part of the Transportation Act, 1920. "It was forced over by the Senate," Mr. Thom said, "by an accumulation of business influences which I have never seen exceeded in matters before Congress."

If the railroads have become obsolete, he said, then there is, of course, no public obligation to try to save them, but he quoted from many expressions of public officials to show that railroad service is and will continue to be an essential to the public welfare. Those who think that motor vehicles may be able to replace railroads, he said, should consider the enormous expansion of highway facilities that would be required and that, whereas the highways are now congested when it is estimated that trucks handle about 4 per cent of the freight handled by railroads, it is estimated that 3,467,795 miles of new highways, which at \$30,000 a mile would cost one hundred and four billion dollars, would be required to handle all the freight by motor vehicle. He said he gave these figures merely to indicate the practical questions and the great cost that must be taken into consideration by those who contemplate scrapping the railroads at a time when the tax-paying bodies are "about loaded up" with the expense incurred in providing the present highways.

To repeal recapture only for the future, Mr. Thom said, would indicate to the public mind a policy on the part of Congress that steps should be taken to enforce the claims for the past, which would require completing the valuations and would result in immeasurable injury to the prospect of economic recovery. No railroad has been able to set up a reserve for recapture, he said, because no one knows whether his road is subject to recapture until the commission completes its valuations for each year and, as the commission is making its valuations in a way which the railroads believe is contrary to the rulings of the Supreme Court, the courts would be filled with litigation. If valid claims for the amount which the commission has estimated may reach \$378,000,000 for the past twelve years should be made now the railroads would have to borrow the money in a market which is now incapable of taking care of even legitimate claims.

Mr. Thom said that some of his railroad clients say they are not interested in recapture because they are not in the recapture class but that he has said to them that such an accumulation of judgments against certain railroads would affect every railroad and every business enterprise in the country. "I cannot imagine any greater catastrophe than would result from an attempt to collect it," he said. "It would affect the ability of the railroads to employ labor and restore wages and to pay taxes; it would impair the credit of the carriers and postpone the economic recovery of the country."

Commissioner Eastman had already told the committee, Mr. Thom reminded it, that rates have not been based on Section 15a but have been made under conditions of economic pressure and necessity. The rates increased in 1920 were almost immediately abandoned, some by the carriers and some by the commission. While the roads of the Eastern district showed 5.9 per cent on the tentative valuation plus additional investment for the year 1926, that was because of the increased tonnage of the Pocahontas district caused by the British coal strike, and the fact that the Southern roads exceeded the percentage in 1925 and 1926 was caused by the Florida boom. The roads have never had a fair return attributable to the rates, while there has been a tremendous deficiency under a fair return for the whole period.

In concluding his testimony on January 28, Mr. Ben-

ton said the views of his association would be met by H. R. 7117, if the repeal of recapture were made retroactive and if the three factors specified as to be given consideration by the commission in rate-making were omitted, or, at least, if the first two were left out.

"If the railroads have learned that they paid a rather high price in recapture for an unworkable rate-making rule we are glad," he said by way of peroration. "They have discovered that they had a bad uneconomic law that won't work but the price they agreed to pay is still there. The Interstate Commerce Commission can be trusted to give that degree of consideration which it ought to the things necessary to the maintenance of an adequate transportation system and we ask Congress not to put in other language that would enable the carriers to come to the commission as they did last summer, supported by cohorts of Wall Street bankers, to claim that the wells of credit will dry up if the commission does take such and such action."

A. L. Holton, vice-president of the Interstate Railroad, a short line in Virginia, on whose recapture valuation the commission has been holding a series of hearings recently, appeared before the committee on January 27 to urge repeal of the recapture clause. He said that in 32 years the company had earned over 6 per cent on its investment in only two years but that it had recently been called on by the commission for approximately \$400,000 during a serious business depression.

Mr. Thom began his discussion of the rule of rate-making on February 3, saying that since the "rate base" plan suggested by the commission has been practically abandoned there was no occasion to consider it further. He said the effort to make rates on the basis of valuation was abandoned after 1920 and that every time the railroads have tried to have the law enforced they have failed. He cited the western grain rate case, in which the Supreme Court failed to pass on the interpretation of 15a, and the recent 15 per cent case in which, although there was concession everywhere that the roads were not earning half the fair return, the commission "just said it was not practicable to apply that standard." "I wish to see a system of regulation," he said, "that will not raise the question of confiscation but will be as liberal as a government can be toward an industry which it has taken into its own hands and has limited in so many ways. With all the limitations on the carriers the question of what their earnings shall be should be determined so that they can give the public adequate transportation. There is no such thing as a single reasonable rate and we say that the rule should be announced by Congress that its administrative body shall select from the zone of reasonableness such rates that the aggregate will at all times guarantee to the public adequate transportation."

Language Proposed by Mr. Thom

The verbal changes suggested by Mr. Thom in the rule of rate-making of H. R. 7117 would make it read as follows:

"In the exercise of its power to prescribe just and reasonable rates, the commission shall give due consideration, among other things, to the existing needs of the public for adequate and efficient transportation facilities and service, to the necessity for enlarging and improving such facilities and service to provide for the growing transportation needs of the public, to the effect of the proposed rates on the movement of traffic and to the necessity, in the public interest, that the carriers furnish transportation service at the lowest rates consistent with adequate service and adequate provision for the transportation needs of the public." Then would follow the language of the bill: "And the com-

mission shall, so far as practicable, initiate, modify, establish, or adjust rates so that the revenues derived therefrom will, under honest, efficient, and economical management and reasonable expenditures for maintenance of way, structures, and equipment, constitute a sufficient basis for the maintenance of a national system of railway transportation at all times adequate to the needs of the public." Then follows the proviso giving the commission latitude to modify any particular rate and declaring that fluctuations in revenues in times of prosperity or depression shall not necessarily be regarded as a reason for increasing or reducing rates and the declaration that it is "the duty of the commission, in the exercise of its sound discretion, to maintain as far as possible a general level of rates which, over a reasonable period of years, will produce revenues consistent with the standard above set forth."

To go back to the rule of "just and reasonable" rates in Section 1 of the act, he said, would mean a government by men and not by law and, without any legislative guide, the result would, of course, depend on the character of the administrative body at any time. He said he was as much opposed to Congressional rate-making as any one can be but that it is no new thing for Congress to specify certain considerations, as long as they are not exclusive. The question of what is "adequate" transportation would have to be left to the commission, he said, but it is impossible to regulate without some room for judgment. Prior to the transportation act the carriers did not think the commission was exercising proper discretion but thought that the railroads were being starved. Mr. Thom said he was not asking Congress to consider what the railroads would need except in its bearing on the needs of the public and that if there is any difficulty about the use of the word "credit" in the bill he was perfectly willing to leave it out. Discussing the origin of the language proposed by the commission in H. R. 7117, Mr. Thom said the three things which the commission would be directed to consider were included in the recommendations made by the commission to the Senate committee a year ago as a substitute for the Howell bill; that the factor numbered (1) is in the transportation act, and that the one numbered (2) referring to credit was taken from the Newton bill of 1928 which was drafted by the shippers' organization. Clause (3), he said, has been criticized by no one. Referring to the changes which he suggested he said he was not wedded to the language and that expressions originated with the commission and the shippers and not with the carriers. When Representative Garber asked if the three "considerations" were not all included in the affirmative language that follows and if their specific mention would not be liable to provoke controversy, Mr. Thom said he thought they merely served to clarify the purpose, which ought to be made as clear as possible. The commission must determine what is "adequate" transportation, he said, and its judgment cannot be set aside by the courts unless it acts arbitrarily and without adequate evidence. The "criterion" set up in the three numbered clauses, he said, has been the settled policy of Congress since 1920 and much of the same language is included even in the Hoch-Smith resolution.

Mr. Thom said he wanted to leave valuation only as a measure of confiscation, something with which Congress has nothing to do. "I think generally the commission would have to give enough to make a fair return or it wouldn't get anybody to invest in railroads, but there are times when it can't do it. I think it would be reasonable to so adjust rates that over a period of years there will be a fair return."

In reply to a question, Mr. Thom said he desired to

have Section 19a, the valuation act, repealed as a whole, although the commission would keep records by which it would be advised of changes in investment and property. Valuation would come in only when a question of confiscation arises. It is a very difficult thing for a railroad to prove confiscation but, in any event, the commission is using a method of valuation which the carriers cannot accept and in any confiscation case they would have to ask for a judicial determination of value. Asked if valuation would not be needed by the commission in its regulation of securities he said that value for that purpose can be got at independently. It is a matter of judgment which can be informed in a particular case without all the costly machinery now required just as every man who lends money to a railroad has to make his own estimate of value. The valuation law was enacted, Mr. Thom said, by those who suspected the railroads were filled with watered securities but the valuation has already exploded that theory and if 15a is changed so as not to call for a valuation its importance will have disappeared. He also said that many roads have already asked the commission for a "vacation" from some of the expense of complying with valuation orders, in the same way some of them have asked for more time in which to pay their taxes.

Referring to the suggestion that the railroads should resort more to the opportunity for pooling, Mr. Thom said the law has a limitation that pooling may not be resorted to without the consent of each carrier involved and that there is no constitutional power anywhere to require one carrier to help another until the carrier called upon to extend help has itself received a fair return. Asked if competition would reduce rates if there were no regulation Mr. Thom said that "it might" and that he thought regulation has to some extent been a protection to the railroads. He said he was not a critic of regulation but that it has been of benefit to the public and the railroads. "It has put the latter in a strait-jacket but it has helped them in some ways."

Representatives of the short lines were to appear before the committee on February 4 and Mr. Thom was to appear again on Friday. On Tuesday the committee expects to hear from the electric railways, after which Commissioner Eastman will appear again and it is expected to conclude the hearing by the end of the week.

Report on Gallitzin Derailment

(Continued from page 240)

began to suspect something about the same time. The engineman thinks that the speed was about 25 miles an hour when he passed SF. He had sounded the whistle for the brakes while in the tunnel and soon after leaving the tunnel, but these signals were not heard to any effect. After the wreck, a closed angle cock was found on a car which was thought to have been the twelfth from the engine. Brakeman Jones, on the seventieth car, tried to pass a signal to the flagman and tried to separate the hose between two cars, but did not succeed.

The investigation disclosed that some person had been tampering with airbrakes in the vicinity of Gallitzin. A few hours before this derailment, a closed angle cock was found near the head end of a westbound freight train but was discovered before damage was done. A

few days after this accident, four closed angle cocks were found near the head end of an eastbound freight train but the brakes had set because of brake-pipe leakage and the train was safely stopped. In the case of extra 4272, the engineman of the second pusher engine saw two boys standing beside the track near AR but these did not appear to be tramps; and no member of the crew saw anyone on the train. One brakeman had been over the entire length of the train in connection with his duty of turning up retaining valves. Even assuming that the two boys had closed the angle cock on the twelfth car, this, says the report, does not explain the derailment. Had the angle cock been closed at or near MO the gages in the caboose and on the pusher engines would have indicated leaking of brake-pipe and the brakes probably would have leaked on before reaching the tunnel. If the angle cock had been closed after passing AR, it would not have interfered with the setting of the brakes by the men at the rear of the train. There was no evidence that there was more than one closed angle cock in the train and it was not determined by whom or when that one was closed.

Brake Power and Speed

The report holds that the brake power was good and sufficient before starting the descent of the grade. Assuming that the brake pipe behind the twelfth car was properly charged, there was still sufficient power available had the brakes been applied from the rear end before the speed became excessive. It is believed scarcely possible that the train could have run as far as it did, had there been no retarding force other than the few brakes on the head end which were set by the engineman; it is believed that the speed was retarded by leakage back of the twelfth car. "Had the flagman been fully alive of the situation, he could have applied the brakes in time to control the train."

The report says that the speed was above the maximum permitted by the rules. Eastbound freight trains are limited to eight miles an hour between MO and AR so that brakemen shall have no difficulty in turning up retainers; and 12 miles an hour is the limit between AR and SF; but the enginemen of the two pushers estimate that the speed in this case was from 17 to 19 miles an hour and they said that this rate was usual. As there is no stretch of level track at the summit, it is imperative that speed restrictions be rigidly adhered to and that every member of the train crew be on the alert. If, then, airbrake troubles cannot be promptly detected, "it should be required that trains stop before entering the tunnel, while the pusher engines are still attached, and the brakes tested before proceeding down the mountain."

The estimated damage to the cars, the locomotive and the roadway, including the cost of clearing the wreck, as reported by the road, was \$72,671, of which more than one fourth was the cost of clearing the wreck. The total loss would, of course, include the value of coal not recovered and items incident to the derangement of train service. The wreck occurred on Wednesday evening. One track was cleared early on Thursday and a second about 6 o'clock Friday morning.

THE CHICAGO RAILWAY EQUIPMENT COMPANY held its thirty-ninth annual dinner at the Union League Club, Chicago, on February 2. This is the thirty-ninth time the dinner has been held in that club. The topic of the evening was "What the Future Holds For Us" and after the heads of the various departments of the company expressed themselves, J. A. Emery, attorney for the National Manufacturers Association, gave the concluding speech.

Trucks Making Heavy Inroads Into Short Haul Coal Traffic *

Present rates permit highway carriers to compete successfully on a rate per ton-mile basis, even to plants with railroad sidings

By C. V. Beck

President, St. Louis Coal Co., and General Sales Mgr., Lumaghi Coal Co.

THE railways are justly perturbed about the truck situation in general. They and the coal industry are disturbed about the great increase in the trucking of coal which has been growing each year for the last five years. During the past year it has probably grown more than in any other twelve months' period. The railways, of course, are concerned about the loss of revenue traffic. The legitimate retail coal dealer is perturbed about it for the reason that he has not engaged in the trucking to any extent, the majority of this business being conducted by a new kind of retailer who is a truck hauler engaging in the retail coal business simply for the sake of the haul involved therein. The larger coal operator does not view direct-from-the-mine hauling of coal by trucks with favor for the reason that it has a harmful effect on his best customers, the legitimate retailers, and for the further reason that his sympathies have always been with the railroads.

On the other hand, the belief seems to be growing in the coal industry that the only way to meet fire is with fire. The legitimate dealer is beginning to experiment with hauling coal direct from the mine and to think of going into it in a serious way. The reason he has not done this before is because the average small country bank mine, which has supplied most of this coal, has not afforded facilities which the larger dealer considered suitable.

Instances of Coal Trucking

On the other hand, some good-sized mines are beginning to equip themselves elaborately to handle this kind of business. Quite a few mines of large capacity which encountered difficulties and suspended production several years ago are opening up on a truck haul basis. One mine in particular, with a capacity of 3,000 tons, recently opened up on a truck haul basis equipped to load a thousand tons a day. Many large mining companies are being forced into putting in truck loading facilities. Coal is being trucked freely 25 miles and in some instances 50 miles throughout the entire coal-producing territory. There has been quite an increase in tonnage in the small producing areas of Iowa and Missouri in the last year due entirely to truck hauling of coal. Coal is being trucked from the Wilmington field in Northern Illinois to Chicago and its suburbs—in

some cases a haul of over 40 miles. Fortunately, in this case the available supply is very small—only a drop in the bucket. Coal is being trucked from Western Missouri mines to Kansas City. It is being trucked from nearby coal fields to Rock Island, Davenport and Peoria, in fact wherever coal is produced.

St. Louis, which is within 15 miles of a large coal field, has perhaps the greatest amount of direct-from-the-mine truck hauled coal of any place in the country. As many as 900 trucks daily have been counted coming across the bridge at St. Louis with direct-from-the-mine coal. This, together with the fact that a great deal of it stops in the industrial section of East St. Louis, leads to the conclusion that as much as 5,000 tons of coal are truck-hauled direct from the mines on peak days. Several large industries using coal in carload quantities are receiving their entire supply by trucks. The trucks have locked horns with the railroad rate. Store-door delivery is not a consideration in this instance, since these industries have sidings right beside their boiler rooms. The loss of railroad tonnage to coal truck haulers around St. Louis is estimated at 700,000 tons per annum.

As an example of how truck hauling has grown in the industrial states, the coal report of Illinois shows that the tonnage loaded by coal mines into trucks for local distribution was 3,316,858 tons in 1928 and 3,743,671 tons in 1929; an increase of 462,713 tons or 13 per cent. In Madison and St. Clair counties, opposite St. Louis, the amount so loaded in 1928 was 569,192 tons; in 1929 it was 714,878—an increase of 154,286 tons or 27 per cent. The increase in 1930 was much greater.

The extension of the radius of truck hauling is largely due to the high speed of present pneumatic-tired trucks. In straight cross country hauling they run practically as fast as a passenger train, easily 35 miles per hour loaded, and are averaging 200 miles a day. The radius within which a truck can haul is determined more than any other factor by the number of loads that can be hauled a day. The average truck day is nine hours, although this is stretched to 10 and even slightly more, if necessary. One reason for the growth of truck traffic is that by loading at the mines and carrying coal to destination there is little lost time in loading and unloading and the facilities at both ends of the line have been considerably improved to accommodate truck hauling since it became such a factor.

In order to analyze this situation thoroughly, the accompanying tables have been prepared from authentic sources of information. They are based upon the fact that trucks can be readily hired on the following scale: Trucks of 10 tons' capacity, \$40 a day; 7 tons, \$30; 5 tons, \$25; 3 tons, \$20.

* The *Railway Age* welcomes to its columns this persuasive analysis and proposed solution of a perplexing railroad problem. Such publication, however, does not necessarily imply unquestioned acceptance of the opinions contained therein. In the words of the author, "these suggestions are not dogmatically offered, but simply as food for thought." Our columns are open to our readers who have constructive ideas on this subject. The article was prepared without reference to Ex Parte 103 and the changes in the situation resulting from the decision in that case are not taken into account.

Table 1 shows how the truck hauler arrives at these daily earnings. It might be stated that there is some hauling on a per ton basis which does not average up to the requisite daily earnings shown. There are many operators of the "fly by night" sort who invest in second-hand trucks and run them entirely without re-

Table 1—Truck Earnings and Expenses

	10 tons	7 tons	5 tons	3 tons
Usual load carried	10 tons	7 tons	5 tons	3 tons
Gross earnings per day considered satisfactory. (Can be hired for) ..	\$40	\$30	\$25	\$20
Average mileage per day feasible on long hauls	200	200	200	200
Average yearly mileage in 250-day year	50,000	50,000	50,000	50,000
Yearly gross earnings on above basis	\$10,000	\$7,500	\$6,250	\$5,000
Cost of truck, new	\$7,000	\$5,000	\$4,000	\$1,200
Cost of Operation				
Gasoline and oil per truck mile... 4 cents	3 cents	2½ cents	2 cents	
Gasoline and oil per year (50,000 miles)	\$2,000	\$1,500	\$1,250	\$1,000
Tires	1,000	750	600	300
Driver at \$6 per day	1,500	1,500	1,500	1,500
Insurance and taxes	1,000	750	600	400
Repairs	1,000	800	600	500
Depreciation	1,500	1,000	600	300
	\$8,000	\$6,300	\$5,050	\$4,000
Balance for profit and overhead....	\$2,000	\$1,200	\$1,100	\$1,000

Note: The above represents the top figure for each item quoted by any of the authorities consulted. Of course large truck haulers obtain gasoline at wholesale prices, generally the tank wagon price, which averages four cents per gallon under the service station price. In some few instances they take gasoline in carload quantities.

gard for overhead and depreciation. While these operators usually come to grief, there seems always to be a fresh crop of suckers to take their place. However, disregarding this situation, and figuring only the more stable truck haulers, the accompanying tables throw considerable light on the situation.

Short Haul Ton-Mile Rates High

Table 1 relates to the cost of truck operation on the above basis. Table 2 shows per-ton hauling rates for various distances for a ten-ton capacity truck and for a seven-ton truck. It shows where the big truck is able to lock horns with the railroad rates on a per ton per mile basis, in competition for any kind of coal hauling business regardless of store-door delivery considerations. Railroad rates for short hauls are high, on a per ton per mile basis. For ten miles railroad rates average from 70 cents to 80 cents per ton; for 20 miles from 80 cents to 90 cents. Table 2 shows that the trucks compete with the railroad and cut the rate for short

Table 2—Truck Rates Per Ton Mile

Showing where the truck can meet the railroad in flat competition on ton-mile charges. Computations made on open cross country hauling on concrete roads considering 200 miles per day, the approximate maximum of truck performance in 9 hours.)

Length of haul (miles)	Round trip (miles)	No. of trips	Total daily miles	Av. load (tons)	No. tons per day	Hauling rate per ton	Based on daily truck earnings	Truck rate—cents per ton mile
Ten-Ton Truck								
10	20	8	160	10	80	\$0.50	\$40	5.0
15	30	6	180	10	60	.67	40	4.5
20	40	5	200	10	50	.80	40	4.0
25	50	4	200	10	40	1.00	40	4.0
30	60	3	180	10	30	1.33	40	4.4
35	70	3	210	10	30	1.33	40	3.8
40	80	2	160	10	20	2.00	40	5.0
Seven-Ton Truck								
10	20	8	160	7	56	\$0.54	\$30	5.4
15	30	6	180	7	42	.71	30	4.7
20	40	5	200	7	35	.86	30	4.3
25	50	4	200	7	28	1.07	30	4.3
30	60	3	180	7	21	1.43	30	4.7
35	70	3	210	7	21	1.43	30	4.0
40	80	2	160	7	14	2.15	30	5.4

hauls for 10 to 15 miles and come to a parity at about 20 to 25 miles.

In other words, with the present rate structures, trucks can take all the business on a 10-mile haul, generally take it on a 15-mile haul and on a 20-mile haul are about even.

This is business the railroads can recover. They are simply holding the sack for trucks on distances up to 25 miles. A rate of 50 cents a ton might look low to a railroad company for a 10-mile haul when they have previously obtained 80 cents, but it cannot be said it is an unprofitable rate and it is a lot better than losing all the business. This is a situation where the railroads should examine the short haul rate structure and see whether the truck rate can be met. A 50 cent per ton flat minimum gives a rate of 5 cents per ton per mile for 10 miles and 2½ cents per ton per mile for 20 miles, which may not be liberal according to past railroad thought on short hauls, but it is considerably better than nothing. There are many rates in effect which are lower for such distances, especially switching rates where the terminal expense is greater than in short haul country territory.

From a standpoint of net cost it seems ridiculous to allow trucks to take business on a heavy bulky commodity by cutting existing railroad rates 40 per cent. That is a situation that should and could be stopped, and it would not involve any great hardship on the part of the railroads, since the rates could be made to come up to the present levels at from 30 to 40 miles. Table 2 should be of some consolation to the railroads, since it shows that the best a truck can do under favorable circumstances is from 4 cents to 5 cents per ton per mile, so there is no real danger from truck competition on long haul coal business.

Store-Door Delivery

This about covers the situation as far as absolute direct competition between trucks and the railroads is concerned. However, when we get into the store-door delivery feature, it is a little more difficult.

Of the coal sold within 30 or 40 miles of coal mines, perhaps the largest share is for domestic consumption, where the truck delivers right from the mine to the home owner or business building, making store-door delivery and eliminating the usual local distribution facilities of the retail dealer.

In order to determine what action is necessary to meet this competition, it is necessary to find out what is the local distribution cost of the retail coal dealer. Many audits and surveys show that the total cost of distributing coal by a retail coal dealer is over \$2 a ton. The larger the community, the higher the cost, due to traffic and labor conditions and property values. The maintaining of coal yards, unloading equipment and the cost of hauling and handling is the greatest portion of the retail distribution expense. This may be roughly divided and summed up as follows:

In the larger cities the retailer's total costs are from \$2.25 to \$2.50 per ton. The net cost of maintaining distribution facilities and hauling run from \$1.75 to \$2. In smaller cities and towns the net retailer's cost is between from \$1.75 to \$2 and the maintenance of his distribution facilities and his cost of delivery averages between \$1.25 and \$1.50. In both cases general overhead, covering a multitude of items such as collections, credit losses, office expense, solicitation expense and profit, is taken at a rather modest figure of 50 cents a ton. Of course, if figured properly, the direct-from-the-mine hauler should have the same general overhead, but unfortunately in many cases he does not figure it. In many cases his overhead is actually lower due to the fact that he does business on a chain store basis, viz., for cash, and will only solicit choice accounts where the consumer will take large full loads and pay cash for them, leaving the small miscellaneous trade to the coal

dealers, thereby running up the latters' already fairly high cost of doing business.

However, for the purpose of the following analysis, we will have to disregard such intangible matters and figure that the truck hauler is working on the same basis as the retail coal dealer and compare the situation with the net cost of distribution of the retail coal dealer plus the freight rate to get an accurate idea of how badly the truck hauler has the combined retail coal dealer and railroad beaten and over what radius he can hope to operate profitably. For the purpose of this comparison we will use the low cost of the retail coal dealer in the rural communities—\$1.25 per ton as the entire distribu-

Table 3—The Store-Door Delivery Situation—Truck-Hauled Coal

Length of haul (miles)	Round trip (miles)	No. of trips	Total daily miles	Aver. load (tons)	No. of tons per day	Delivery cost per ton	Based on daily truck earnings
<i>Five-Ton Truck</i>							
20	40	5	200	5	25	\$1.00	\$25
25	50	4	200	5	20	1.25	25
30	60	3	180	5	15	1.67	25
50	100	2	200	5	10	2.50	25
70	140	1	140	5	5	5.00	25
<i>Three-Ton Truck</i>							
20	40	5	200	3	15	\$1.33	\$20
25	50	4	200	3	12	1.67	20
30	60	3	180	3	9	2.23	20
50	100	2	200	3	6	3.34	20
70	140	1	140	3	3	6.67	20

tion cost—for the reason that within short distances of coal mines the retailer will work on that basis if he has to. In the larger cities where the distribution cost is clearly above this figure, it will probably also operate against the truck hauler with equal force, as traffic density will cut down the ability of the truck hauler to make the maximum number of deliveries per day.

Table 3 shows the store-door delivery costs of making coal deliveries. In this table only three and five-ton loads are considered, due to the fact that the average consumer taking this kind of delivery will not take over three to five tons at one time.

Table 4 shows the average freight rate and the average low cost of local retail coal distribution for various distances from the mines. Comparing Table 4 with Table 3 shows that the truck hauler reigns supreme for distances up to 30 miles and that he is in the picture

Table 4—The Store-Door Delivery Situation—Rail-Hauled Coal

Miles	Average freight rate	Coal retailer's cost of distribution	Total retailer's cost mine to consumer	Less extra mine price charged trucks*	Net balance for trucks to work against
20	\$0.80	\$1.25	\$2.05	\$0.25	\$1.80
25	.80	1.25	2.05	.25	1.80
30	.90	1.25	2.15	.25	1.90
50	1.10	1.25	2.35	.25	2.10
<i>How Situation Could be Met</i>					
20	\$0.50	\$1.25	\$1.75	\$0.25	\$1.50
25	.50	1.25	1.75	.25	1.50
30	.60	1.25	1.85	.25	1.60
50	1.00	1.25	2.25	.25	2.00

* Mines serving trucks universally charge a premium of 25 cents per ton for serving trucks over railroad car prices as this is a form of retail service involving extra expense.

clear up to 50 miles and, in fact, is not hopelessly out of the picture until the distance gets so great that there is no possibility of his making more than one load per day.

Competition That Must Be Met

Table 4 also shows, if local freight rates were reduced, that the truck hauler would have only a very slight advantage at a 20 mile radius and would be out of the picture from 30 miles on. The local coal distributor can perhaps give the truck hauler some slight advantage and still retain the bulk of the business. If these figures in Table 4 are compared with Table 2, the

medicine that is necessary if railroads desire to retain the short haul traffic seems obvious. This sort of truck hauling is a matter of independent contract. It requires no franchise. It is beyond the reach of legal regulation. Therefore this is competition that must be met to be stopped. A mileage maximum of 2 cents per ton per mile should be adopted with a minimum of 50 cents a ton for all distances under 50 miles. This would shut off truck hauling to steam plants that formerly took carload deliveries of coal. It would limit the truck hauling of coal to a maximum radius of 25 miles and would give it such scant encouragement that it is highly probable that the bulk of the truck hauling of coal, even for store-door delivery, would be held to under 20 miles.

It is quite obvious that the more encouragement that is given the truck hauling, the larger the border line territory will grow; and the less encouragement that is given, the more contracted will be the sphere of operations. This is a situation that is well within the power of the railroads to meet. Railroads have always thought of short haul traffic as worth a high rate per ton per mile. On the other hand, a rate maximum of 2 cents per ton per mile on short haul traffic with a 50 cents per ton minimum is not a losing rate and it is much better than losing the traffic. In fact it cannot be said that 2 cents per ton per mile is a bad revenue in view of long haul coal rates of 6 to 8 mills. There seems to be no other solution to the situation. As it stands, the railroads stand to lose all coal traffic up to ten miles, all of the store-door delivery domestic coal business up to 30-odd miles and a great deal of traffic up to a range of 50 miles. Fifty cents per ton minimum will take care of the short 10- to 20-mile hauls and eliminate the direct competition of trucks with railroads on a flat basis. Two cents per ton per mile maximum for distances up to 50 miles will hold down the store-door delivery of coal to the minimum. The entire steam business can be retained and the store-door delivery radius of coal hauling can be held well under 20 miles.

The above recommendation must not be construed as a recommendation for a mileage scale of rates, nor that local groupings by districts be disturbed. All short haul rates, however, recognize mileage at the present time. They are generally built on distance rates. Local groupings have never been uniformly recognized on strictly short haul local rates. The above recommendation is simply that the competitive situation be fully recognized and that a scale of short haul local rates be adopted which recognizes 2 cents per ton per mile as a maximum and 50 cents a ton as a minimum, in order to meet truck competition. The situation must be recognized as a special one, the effect of which be limited to a radius of within 40 or 50 miles of each coal field beyond which the influence of any changes that are found necessary to make should not prevail. In fact, it will be found that, as a general proposition, any changes in the short haul rate structure would merge naturally into the existing rate structures within that distance.

The adjustment of rates on a strictly local basis need involve no embarrassing precedents. The rates will level themselves out to approximately the present rate structure within a radius of 50 or 60 miles of the mines. It will involve in certain cases matters of policy in regard to differentials from various coal fields where certain rather large markets are within 50 miles of the mines. The railroads could evidently change their policy and obtain the sanction of various commissions necessary to disregard differential adjustments if it appears necessary as between various coal fields due to the ne-

cessity of meeting this situation up to and including a radius of 40 or 50 miles from each producing coal field. These suggestions are not dogmatically offered, but simply as food for thought.

There may be those who feel that the above over-estimates the ability of the truck to exist at the hauling rates shown and take exception to some of the figures presented herewith. The main answer to which is the fact that the per ton truck hauling rates shown in the above tables can be easily duplicated on a contract basis for any of the distances shown and in many cases are being shaded by the independent truck haulers. When a truck can compete flat with the railroad on a per ton per mile basis in the hauling of a bulk, heavy, cheap commodity and cut the existing railroad rates 40 per cent on commodities shipped and used in carload lots, it is high time for the railroads to take some definite action to protect the tonnage, especially when they can do so and still show any profit at all on the transaction. It is obvious that it would be very much to the railroads' advantage to reconsider and reconstruct all short haul rates on coal and other similar bulk material within a radius of 30 to 50 miles from the point of origin. Many such rates have become paper rates in the last several years.

Increasing Use of Coal in Rural Areas

There is one compensating feature. Concrete highways at the outset practically all paralleled railroads. Now that the trunk lines have been finished a great net work of cross-country concrete roads is being built extending far into the interior country. This is increasing the use of coal considerably in rural districts that formerly burned wood, and this bids to become quite a factor in the next few years. It is estimated that the fuel equivalent of 50 million tons of coal is still being burned in the form of wood. This will more than compensate for a slight reduction in short haul tonnage and revenues, which when considered from a gross revenue basis, was light at best. According to Automotive Industries, \$840,000,000 was to be spent on hard roads in 1931. The program of building up the interior roads will be helpful to railroads rather than otherwise. Such roads will prove to be feeders rather than drains as the parallel roads have been. The whole highway situation presents a new era. It should be met in that light by the railroads. Worn out precedents and thinking on short haul rates must be discarded to protect the largest tonnage that good business will justify.

The inertia of railroads in traffic matters and the policy of never making a voluntary move is costing them lots of profitable business, and enabling their competitors to become more and more strongly entrenched. Railroads should certainly take the bull by the horns and discourage truck competition when they can do so with profit, and not sit idly by and cry over lost business.

* * * *

Books and Letters . . .

Railways Arrange Low Rates to Fit Their Convenience, Not Patrons'

TO THE EDITOR:

As for the complaint that the railways do not experiment with rates—the exact opposite is true. They have so many different rates and such complex tariffs that it is all an expert can do to understand them—to say nothing of the prospective passenger, who simply refuses to go through the mental exercise necessary to comprehend the red tape in which the railroad passenger department has entangled itself.

The railways fix their reduced rates to fit their own convenience rather than that of their prospective patrons—whereas any business man with the merchandising sense of a push cart peddler knows that his first effort should be to fit his product to the needs and convenience of those whom he seeks as his customers.

Here are some of the tariffs which ought to be abolished:

One-way 3.6 cents per mile basing fares	One-way second class
One-way tourist	One-way trans-Atlantic
Round-trip excursions	All-year tourist
Winter tourist	Summer tourist
Diverse route summer tourist	15-day round trip
30-day round trip	21-day round trip
Clergy	Charity
D. V. S.	V. H. B.
Half-rate employee's	Immigrant
Convention	Labor party
Miners'	Scrip
Homeseekers'	

And 25 to 50 different kinds of paper contracts describing the conditions under which the tickets are sold

There should be one flat rate applicable any time and anywhere, perhaps a 2.5 cents per mile 30-day limit ticket with stopovers at all stations, a 2 cents per mile round trip rate with a 60-day limit, and commutation rates.

E. H.

New Book

A History of the Detroit Street Railways, by Graeme O'Geran. 458 pages, 8 $\frac{3}{8}$ in. by 5 $\frac{1}{2}$ in. Illustrated. Bound in cloth. Published by the Conover Press, Detroit, Mich.

Dr. O'Geran, who is assistant professor of economics at Syracuse University, tells in this book the story of the municipally-owned Detroit railways from their inception to January 1, 1930. The dissertation, originally submitted in partial fulfillment of the requirements for the degree of doctor of philosophy at the University of Michigan, divides its subject matter into four main parts as follows: Part I, The Origin and Early Development of the Detroit Street Railways; Part II, The Period of Contention and Consolidation; Part III, The Struggle for Municipal Ownership; Part IV, Municipal Ownership of Street Railways. The study, the preface states, was begun at the suggestion of Senator James Couzens of Michigan, "who while Mayor of Detroit secured for that city a municipally owned street railway."



Baggage-Mail-Express Car Built by Pullman for the Kansas City Southern

Odds and Ends . . .

A Tribute to Thomas A. Edison

To pay an enduring tribute to the memory of Thomas A. Edison, the Pennsylvania has named one of its fast trains between New York and Washington, D. C., the "Edison."

Obey the Rules and Tie Up the Railroads

As a demonstration of protest against wage reductions under discussion in Austria, Fascist railroad employees conducted an unusual campaign. Beginning on December 31, they decided to obey every rule in effect on the railways, right down to the last syllable. It would not have been much worse if they had gone out on strike. Trains running between Italy and Vienna, and between Vienna and Munich were from four to five hours late, and passengers waited for hours for other express trains to arrive.

These Passengers Swam from Seattle to New York

The other day there were more than 200,000 passengers on the Empire Builder of the Great Northern, but the congestion was not noticeable except in one car. This was an express car full of 10-gal. cans, and each of the 10-gal. cans was full of goldfish. It was a personally-conducted trip for the goldfish, which were in the charge of a Japanese from Seattle. Two or three times a day he took a short-handled net into the express car and scooped out the ones which had turned out to be poor travelers.

The Railroad Is Always Ready

In an emergency the railroads do not fail. The Great Northern did not fail one night last December when a woman lay seriously ill in Helena, Mont. Consultation with a physician in Great Falls, 98 miles away, was urgently needed. Weather conditions were such that the doctor could not make the trip by airplane and the highways were blocked by snow. In this emergency an appeal was made to the Great Northern. A special train was ordered at 8:15. Thirty minutes later the train, fully manned and with steam up, stood at the Great Falls station. Ten minutes later the physician boarded it and the run to Helena began. At 11 p.m., 2 hr. and 45 min. after it was first requested, the special train was in Helena with the doctor whose assistance was so urgently required.

Advice to Agents: Own Your Own Station

C. B. Guthrie of Washington, D. C. sends along word of the New Haven station agent at New Lenox, Mass. The agent is Oscar S. Hutchinson, who is 87 years old and for 62 years has held the jobs as postmaster, station agent, baggage master, ticket agent, express agent and storekeeper at New Lenox. With all these positions, however, he has never worn a uniform. Furthermore he is one of the few employees who have "sassed" the railroad and got away with it. Not long ago he heard that the railroad was sending a man to replace him. He wrote to his superior: "You'd better send a new station along with him, as I own this one, lock, stock and barrel." We understand that Mr. Hutchinson is still postmaster, station agent, baggage master, ticket agent, express agent and storekeeper at New Lenox, and is still the proud occupant of his own railway station.

It Might Be a Coolidge Story

R. B. Bogart, in the office of the general superintendent of the Southern at Knoxville, Tenn., contributes the following story: His uncle, an engineman of 40 years' service on the Southern, is noted for his habitual silence. He never speaks except when it is absolutely necessary and then is as brief as possible. The firemen who ran with him would

soon learn this, and whole trips would be made with no other conversation between the engineman and the fireman than a few necessary monosyllabic words. On one trip when Mr. Bogart's uncle had a fireman who had been on the run with him for some time, a guinea rose up from beside the track and flew across directly in front of the engine. The engineman looked at the fireman and, smiling, said one word: "Guinea." The fireman nodded but made no comment. The next day, on the return trip, when they reached the place where the guinea had been seen, the fireman looked over at Mr. Bogart's uncle and said, "Are they good to eat?" That was the only conversation that took place between them on the trip.

When Better Specials Are Run, California Will Run Them

Reports from California indicate that the railroad men out there have about come to the conclusion that a freight train is not a freight train unless it is a special and is the biggest of its kind ever operated. Last year California originated a number of special lumber trains, each of which was "the longest ever operated." Now they are talking about arranging for the largest and longest trainload of perishables on record. It has been suggested that this train should consist of enough cars to provide for at least three average trains; that it be pulled by three or more engines, that it be routed through territory of dense population in which stops, well advertised in advance, should be made; and that one or more Pullman cars should be attached to the train, which would be filled with non-perishables in the form of California shippers, packers, producers and publicity experts.

The California traffic men are not too busy with their plans, however, to cast a few envious glances in the direction of the state of Kansas where the coal operators recently ran a coal special of 40 cars over the St. Louis-San Francisco. At the rear of this train was a Pullman car filled with Kansas coal operators, who were met by special committees at various points in the state and were aided in their celebration of the renewal of coal mining activities in Kansas. The Californians wish they had thought of that first.

The Sign Language of Railroad Men

The current issue of the American Mercury contains an article by Charles Carpenter entitled "The Sign Language of Railroad Men." In it Mr. Carpenter describes some of the hand signals used by railroad men to exchange information or instructions. "Very simple hand signs sometimes convey a great deal of information," writes Mr. Carpenter. "Say the engineer on a freight train entering a yard, where the train is to be put away, toots the whistle four short blasts—universally understood as the question: 'What are we to do?' A yardmaster, standing on the little side porch up on the tower at the end of the yard touches his head with the fingers of one hand, then raises his hand with the fist closed twice above his head; finishing this, he rubs the palms of his hands together and then crosses his arms between the wrists and elbows. What he has replied to the engineer's whistle question is this: 'Head in No. 2 track with your train and pull down far enough to clear the crossover' . . .

"It is natural for every railroad man, from the general manager down, to keep track of his superiors. This propensity has been the origin of two or three peculiar signs. When the baggageman in a baggage car at the front end of a passenger train places his thumbs in the armholes of a real or imaginary vest and swells his chest out and points back along the train, those who are looking on know that he is saying: 'The big boss is back on the train.' Another sign for saying that officials are in a certain direction is to hold the fingers five or six inches from the head and work them up and down in a motion like scratching the head, and then point in a certain direction. This signifies 'big heads' in the direction indicated."

NEWS

Shippers Disapprove St. Lawrence Seaway

Canadian traffic body says existing
canals lack traffic—Prefer
rail subsidy

The inland waterways committee of the Canadian Industrial Traffic League, reporting to that body at its annual meeting in Montreal last week, strongly opposed the deepening of the St. Lawrence river to accommodate ocean shipping. The report was presented by E. D. Stuart, chairman of the waterways committee, and expressed a doubt whether the seaway, if completed, would be used by ocean shipping to an extent to justify the expense.

"The principal commodity exported from Canada," the report said, "from the territory served by the Great Lakes is wheat, and Canada has already expended vast sums of money providing an additional outlet for western grain through the Hudson Bay. Exports via Vancouver have also increased materially and it would therefore appear that we cannot profitably continue to provide facilities for the movement of grain by additional vast expenditures of money."

The building of a modern waterway would merely bring about greater competition with the railway systems with a further loss of revenue, the report predicts.

"At the present time the cream of the railway traffic has been largely lost to highway transportation. Is it to be the policy of the government of Canada to further subsidize another transportation route to deprive the railways of tonnage they need? Much remains to be done in regard to putting highway and rail traffic on a proper and equitable footing and for the railways to realize the changed conditions. The committee cannot too strongly deprecate a scheme that does not comprehend these factors. It would seem that we could better afford to subsidize even further the rail carriage of grain than incur a major capital expenditure of doubtful value which appears likely to seriously affect existing transportation systems."

Canals already in existence, it was pointed out, are not used to anything like capacity and, if they were, their capacity could be greatly increased at slight expense.

The benefit of the St. Lawrence canal would accrue entirely to the importer and not to the farmers who would

supply the bulk of traffic. Furthermore, it was stated, the Dominion is not in a financial position warranting such a huge expenditure.

The league endorsed five recommendations of its highway traffic committee, as follows: That the provinces be petitioned to make no major changes in their present regulations affecting commercial motor vehicles until such time as the Royal Commission on Transport presents its report.

That the provinces either collectively or individually endeavor to obtain through competent authority an estimate of the amount the operators of different classes of vehicles should contribute toward the construction and maintenance of highways.

That the provinces now having regulations for operation of motor vehicles should endeavor to enforce strictly such regulations before any further regulations are imposed.

That the railways investigate further the possibilities of co-ordination of rail and motor facilities.

That the provincial governments be requested that the Canadian Industrial Traffic League be permitted to appear in connection with any proposed legislation respecting motor transport.

C. P. R. Earns 27.7 Millions

Net earnings of the Canadian Pacific in 1931 totaled \$27,763,899, against \$38,687,673 in 1930, a decrease of \$10,923,774. Operating expenses were reduced by \$27,219,349 during the year. The year's gross totaled \$144,418,675, against \$182,561,799, a reduction of \$38,143,124. Expenses totaled \$116,654,776, against \$143,874,125.

For the month of December gross was \$11,442,436, a reduction of \$2,971,551 from December of 1930. Expenses totaled \$7,765,829, leaving net \$3,676,607, against \$4,203,713 in December of last year.

Following are gross revenues, expenses and net revenues for the month of December, and for the 12 months of the company's fiscal year with comparisons:

	DECEMBER		Decr.
	1931	1930	
Gross	\$ 11,442,436	\$ 14,413,987	\$ 2,971,551
Exp.	7,765,829	10,210,274	2,444,445
Net	3,676,607	4,203,713	527,106
TWELVE MONTHS			
	1931	1930	Decr.
Gross	\$ 144,418,675	\$ 182,561,799	\$ 38,143,124
Exp.	116,654,776	143,874,125	27,219,349
Net	27,763,899	38,687,673	10,923,774

Railways Suggest New Deal in Rate Making

Petition in fertilizer case asks
greater consideration of
revenue requirements

Railways operating in Official Classification territory, setting forth among other contentions that "A dire need exists for a new starting point in the regulation of territorial rate structures," have filed with the Interstate Commerce Commission a petition for an order initiating a general investigation into the rates on fertilizer and fertilizer materials between points in that territory. The petition is in effect a request to broaden into a general inquiry the pending investigation of certain complaint cases involving fertilizer rates in New England and Eastern Trunk Line territories.

In defending its call for a new starting point in the regulation of territorial rate structures the petition cites recent affirmative admissions of the commission on the question of carrier credit and revenue needs and the commission's statutory duty in connection therewith. This discussion opens with a reference to the commission's special report to the State committee on interstate commerce on January 21, 1931 wherein the regulatory body pointed out that the railroads have never been able since 1920 to earn the return contemplated by section 15 (a) and called attention to the increasing competition of other forms of transport. Then come quotations from the decision in the recent Fifteen Per Cent Case, the first being from that section wherein the commission agreed that "there was then (in 1920) introduced into the law a new element of protection for the carriers in the public interest, a protection particularly of the credit essential to the preservation of an adequate system of transportation."

Further references to the Ex Parte 103 decision call attention to the I. C. C. comment on the decline of confidence in railway securities and its suggestion there are several rates to which the traffic departments of the railroads should address themselves with the view of "making such changes in the rates on particular kinds of traffic as will, in their judgment, after careful analysis of all attendant circumstances, produce additional revenue and which can be supported as reasonable under existing conditions."

Finally, the recent decision of the United
(Continued on page 263)

Reduced Barge Rate on Cotton Withdrawn

Tariff suspended for investigation
by Secretary of War not
to go into effect

Necessity for a formal decision by the Secretary of War as to whether the Inland Waterways Corporation should put into effect the drastic reduction in barge rates on cotton from Memphis to New Orleans, which was temporarily suspended for an investigation on October 16, has been removed by the action of the barge line in withdrawing its reduced rate, announced last week by General T. Q. Ashburn, executive officer of the corporation.

The reduction was originally made effective on October 6 but was suspended by order of the Secretary of War after protests had been made by railroads. It was at first announced that every effort would be made to reach a decision before the expiration of the cotton-shipping season, but after receiving several reports on the subject the Secretary of War announced on December 31 that he had directed a continuation of the suspension until he could assemble all the facts involved. Later, after a conference with representatives of the cotton and railroad interests at Memphis, General Ashburn said that although three other barge lines were actively engaged in transporting cotton at the same rates as proposed by the corporation he had decided to "remove the objectionable rate" and limit the time within which commitments previously made under the reduced schedule would be carried out. He issued a statement saying that at the time he was in Memphis the representatives of the southwestern railroads were considering reduced rates from Arkansas in order to meet truck competition but were undecided for fear the barge lines would make a corresponding reduction; but that he had told them that the federal barge lines desired to "remove themselves from this rail-truck controversy and would stand by the old rates." He also said that later he was approached and asked to join in a rail-and-water rate which would have yielded the barge line less than it would have earned under the rate it had proposed, in order to meet the competition of the trucks and the private barge lines, but that he had refused to do so on the ground that railroad officials had said that the rate he had proposed was less than compensatory.

I.C.C. Requires Monthly Reports of Railroad Financial Condition

For the purpose of making it possible to keep in close touch with the current financial position of the railways this year, when so many of them are so "near the ragged edge," and will be compelled to resort to the government and to the Railroad Credit Corporation for loans, the Interstate Commerce Commission has

issued an order to the Class I railroads requiring them to submit monthly a new report of selected income and balance sheet items which ordinarily are reported only annually, in addition to the monthly reports of operating revenues and expenses. The reports to be submitted 45 days after the close of each month, will include, in addition to the net railway operating income, which heretofore has been the principal index of the railroad situation available currently, the other income, rentals and interest deductions, net income and dividend declarations, as well as 16 balance sheet items which will include a statement of current assets and liabilities. This will also include a statement of long-term maturities within six months, loans and bills payable, and cash.

Reduced Express Rates Suspended

The Interstate Commerce Commission has suspended from February 3 until September 3 the operation of schedules published by the Railway Express Agency, proposing to reduce the express rates on fresh fruits and vegetables, and fish, from, to and between points in the Southern States, to meet purported motor truck competition.

Frisco Employee Solicitation Successful

A total of 6,896 cars of freight, 9,823 l.c.l. shipment and 3,003 passenger were secured by Frisco employee clubs located at 64 points on the road during 1931 as a result of individual solicitation of new business on the part of the members. The two clubs at Springfield, Mo., secured 1,870 carloads, 3,210 l.c.l. shipments and 736 passengers, thereby leading all other clubs.

Shipping Board Regulation of Inland Waterways Opposed

A sub-committee of the Senate committee on commerce, which, on January 29, began hearings on a bill suggested by the Shipping Board to give it regulatory powers over inland, intercoastal and coast-wise water transportation, has voted to return the bill to the board for redrafting with a suggestion that it leave out the references to inland water transportation.

Club Meetings

The Canadian Railway Club will hold its next meeting on Monday evening, February 8, at the Windsor Hotel, Montreal. M. McDuff, Montreal, manager of the Great Lakes Steamers of the Canadian Pacific, will present a paper on the work of the freight handling committee, which has been functioning since 1922.

The Western Railway Club will hold its next meeting, known as "Family Night," on Monday evening, February 15, at the Hotel Sherman, Chicago, at 8 p.m. The meeting will be addressed by Dr. Phillips Thomas, research engineer of the Westinghouse Electric & Manufacturing Co., on the subject "Electricity at Work and at Play." Outstanding accomplishments in the modern electrical field will be explained and demonstrated with special apparatus.

N. Y. Merchants Oppose St. Lawrence Waterway

Proposed route detrimental to New
York—"Cost astounding,"
report states

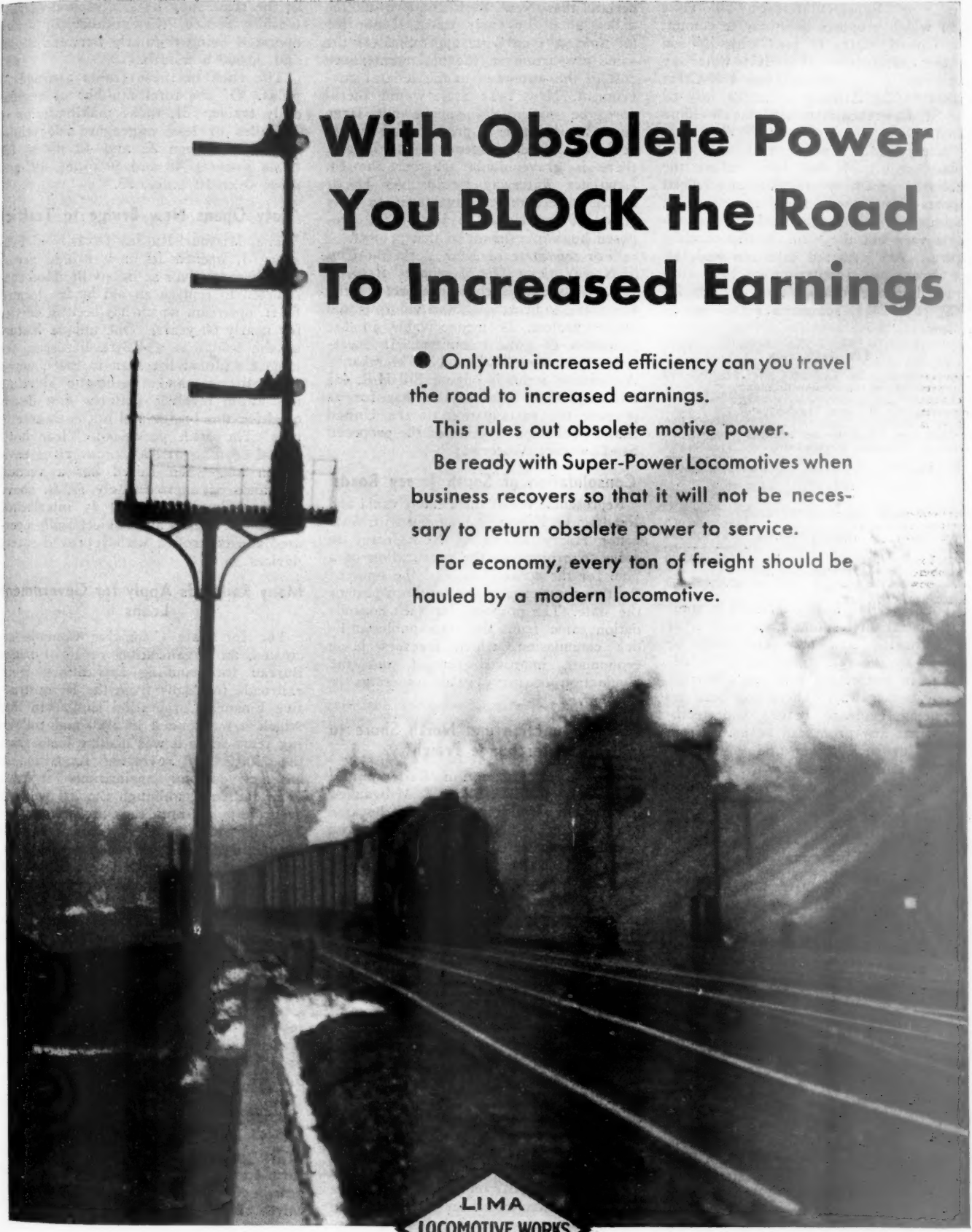
Holding that if the United States should join with Canada in the construction of the proposed St. Lawrence waterway, New York State would have to pay more than 28 per cent of this country's bill for its construction and maintenance, The Merchants' Association of New York on Saturday, January 30, sent to President Hoover, to Representative Sam Rayburn, chairman of the House committee on interstate and foreign commerce, and to all New York State members of Congress, a vigorously worded communication recommending that all plans for participation of the United States in the building of the waterway be abandoned.

The association, which has never before come out outspokenly against the St. Lawrence project, took this action following the introduction in Congress, by Representative Mapes of Michigan, of a bill which would definitely commit the United States to join Canada in the construction of a waterway for ocean-going vessels from the Great Lakes to the Atlantic ocean by way of the St. Lawrence river and the Welland canal.

The matter was referred to the association's committee on inland waterways and water power, of which R. A. C. Smith, former New York City dock commissioner, is chairman, and which includes among its members Amos L. Beatty; Frederick Coykendall, president, Cornell Steamboat Company; Howard S. Cullman, chairman, Port of New York Authority; Alfred V. S. Olcott, president, Hudson River Day Line; J. R. Slattery, deputy chief engineer, Board of Transportation, New York City; J. W. Smith, consulting engineer, and E. S. Walsh, of the Munson Inland Water Lines. This committee looked into the matter with special reference to the effect on New York State and reported that since from 28 to 54 per cent of various federal revenues are collected here, the state would be, if the waterway were constructed, continually paying out large sums to maintain a project which would be highly disadvantageous to it in a commercial way, inasmuch as millions of tons of traffic would be diverted from the ports of New York and Albany.

"This association is convinced," said the letter to President Hoover and to the various members of Congress, "that this project will not be of benefit to the United States and that the huge investment required to carry it out is not warranted even by the most optimistic estimates of possible returns to this country." Accompanying the letter was a copy of the association's report, which, after being prepared by the committee, was approved unanimously by the board of directors on January 21. This report read as follows:

"There has been introduced in the



With Obsolete Power You BLOCK the Road To Increased Earnings

● Only thru increased efficiency can you travel the road to increased earnings.

This rules out obsolete motive power.

Be ready with Super-Power Locomotives when business recovers so that it will not be necessary to return obsolete power to service.

For economy, every ton of freight should be hauled by a modern locomotive.

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House of Representatives a bill (No. 435) which proposes definitely to commit the United States to join with Canada in the construction of a deep waterway for ocean-going vessels from the Great Lakes to the Atlantic ocean by way of the St. Lawrence river and the Welland canal.

"Everyone is familiar with this proposed project. It has been before the public for many years. Various official reports have been made regarding it. Estimates of costs contained in these reports vary but they run into astounding figures. An impartial estimate made by the Brookings Institution in 1929 (abstracted in the *Railway Age* of July 27, 1929, page 241), summarizes the cost as follows:

FOR NAVIGATION	
Improvements in St. Lawrence river.	\$159,000,000
Improvements in inter-connecting lake channels	90,000,000
Improvements in lake, harbor and port facilities	250,000,000
Welland Ship Canal (under construction by Canadian government)	115,000,000
Total	\$614,000,000
FOR POWER	
Improvements in International rapids section	\$301,000,000
Improvements in Soulanges section ..	84,000,000
Total	\$385,000,000
Combined navigation \$614,000,000 and power costs	\$999,000,000

"The belief has been expressed in some quasi-official circles that a proportion of the estimated cost may eventually be realized by the sale of power to be developed in connection with the construction of the seaway. There has been no convincing evidence before your committee that any profit can be made from the sale of such power and your committee seriously doubts that the proposed power development can even be made self-supporting.

"Your committee has for years given earnest consideration to the various reports issued and the numerous statements made with respect to this proposed waterway. It is now prepared to report that in its judgment the project is obviously not in the interest of the State and the City of New York. It is nowhere denied that the proposed waterway would divert millions of tons of traffic from the ports of New York and Albany. Your committee considers it to be its duty and that of The Merchants' Association of New York to oppose any project that would have such a detrimental effect on the Port of New York.

"Whatever the cost to the United States of the proposed waterway—and there is no guarantee that this cost alone may not be considerably in excess of half a billion dollars—New York State must pay nearly 28 per cent of it because that is the proportion of the total internal revenue of the United States which goes from this state to the federal treasury. If customs receipts are included in this calculation, the proportion to be paid by New York State would be increased because the Port of New York alone collects nearly 54 per cent of the total customs receipts of the Nation.

"In addition to this first cost of hundreds of millions of dollars, it is almost

certain that New York State would be called upon for many years, if not for all time, to contribute approximately the same proportion of the net maintenance cost of the waterway to the federal government. New York State would, therefore, be continually paying out large sums to maintain a project that would be highly disadvantageous to it. Indeed, there is grave doubt whether the St. Lawrence waterway would ever be of sufficient economic advantage to any states of the Union to justify the proposed huge investment in that project.

"For the State of New York, the City of New York or The Merchants' Association to tolerate such a prospect as the foregoing indicates, without vigorous and active protest, is inconceivable in the judgment of your committee. It, therefore, recommends that The Merchants' Association strongly oppose Bill H.R. 435 and any other measure that has for its purpose the participation of the United States in the construction of the proposed St. Lawrence Waterway."

Consolidation of South Jersey Roads

Representatives of the Pennsylvania and Reading, on February 3, agreed with Governor Harry Moore of New Jersey to refer to arbitrators the preparation of a plan for the consolidation of the lines of the two companies in the southern part of the state. The proposal for such consolidation came from the state public utilities commission, which foresees large economies, improved service and the elimination of many grade crossings in this move.

Chicago Junction and North Shore to Interchange Freight

The Chicago Junction Railway and the Chicago, North Shore & Milwaukee have made arrangements, which became effective on February 1, whereby the former company will receive either carload or l.c.l. freight at its stations in Chicago for points on the latter railroad and on connecting lines beyond Milwaukee. Shipments from points on these lines also will also be handled by the Chicago Junction in Chicago.

Short Lines Urge Repeal of Recapture

A resolution urging retroactive repeal of the recapture provisions of Section 15a of the interstate commerce act was adopted at a special meeting of the American Short Line Railroad Association held in Washington on February 2 and 3. The meeting was called especially to consider various legislative proposals pending in Congress which affect the railroads. Representatives of the association also were to appear on February 4 before the House committee on interstate and foreign commerce, which is holding hearings on bills proposing a substitute for Section 15a.

A Nearly Perfect Record

Passenger trains on the Long Island Railroad, for the year 1931, made a record of 99.8 per cent on time; and in March, April, June and October the record was 99.9. This, say the officers

of the road, may be safely claimed as a world's record, the number of trains operated being regularly between 25,000 and 30,000 a month.

The runs of these trains average 31 miles. Of the total number of regular daily trains, 921, those making trips of 25 miles or less, aggregate 795; those running between 25 and 40 miles, 82; those between 40 and 50 miles, 19, and those over 50 miles, 25.

Katy Opens New Bridge to Traffic

The Missouri-Kansas-Texas, on February 1, opened its new bridge across the Missouri river at Boonville, Mo., constructed to replace an old bridge located 65 ft. upstream which has been in service for nearly 60 years. One unique feature of the bridge is a 408-ft. lift span, the longest railroad lift span in the country. The lifting and automatic leveling mechanism involves features first developed for this bridge and not elsewhere in use. The span provides a clear horizontal opening of 400 ft. for river navigation and when raised has a vertical clearance of approximately 57 ft. above standard low water. It is interlocked with block signals and is electrically operated and controlled with approved safety devices.

Many Railroads Apply for Government Loans

The Interstate Commerce Commission created an organization in its Finance Bureau for handling applications from railroads for loans from the Reconstructive Finance Corporation similar to that which it maintained in 1920 and following years when it was making loans from the \$300,000,000 revolving fund, and it has received many applications for loans from railroads, although the list will not be made public until they are acted upon. The new Finance Corporation was also completing its organization during the early part of the week and had not yet announced its form of procedure, although it was reported that it had received many applications. Applications are also being received by the Railroad Credit Corporation which is to make loans from the proceeds of the emergency rate increase allowed by the Interstate Commerce Commission but it will not receive funds from this source until March 15. It is understood that all three organizations intend to work in co-operation with each other to some extent.

Livestock Trucking Sets Record in 1931

The transportation of livestock from farm to market by truck last year set a new high record with 21,162,430 cattle, calves, hogs and sheep carried to 17 principal markets throughout the country, according to figures compiled by Charles Snyder, editor of the Chicago Daily Drivers' Journal. Motor trucks hauled 25 per cent more livestock to market than in 1930, and one-third of the total receipts at these 17 points came over the highways. Mr. Snyder estimates that these animals weigh 3,000,000 tons and that the trucked receipts were equivalent

to 342,000 single-deck carloads. A steady increase in livestock trucking is reflected in the figures for successive years, as follows: 1931, 21,162,430 head; 1930, 16,947,803 head; 1929, 14,510,524 head; 1928, 12,193,058 head; 1927, 8,393,101 head; and 1919, 2,453,568 head.

Trucking receipts in Chicago increased 44 per cent last year, according to Mr. Snyder, but Chicago still receives about 90 per cent of its animals by rail. Omaha, with 3,000,000 head received over the highways last year, again led all markets in the volume of motor transportation. In one day, 1,187 trucks brought in 21,078 hogs.

Canadian Wage Situation Still Deadlocked

Following on the heels of the acceptance by the railway unions in the United States of a cut of ten per cent in wages came a conference on February 1 between the General Conference of Railway Chairmen, representing operating employees and representatives of the Canadian National and Canadian Pacific.

The point in dispute is the award of a board of conciliation of wage cut retroactive to November 15 last. This was protested by the unions and led to an offer by the railways to commence the reduction as from December 1. This was again refused.

Last Monday's session, according to Senator James Murdock, representing the unions, did nothing to alter the position of deadlock.

P.R.R. Patriotic Tours

The Pennsylvania plans a series of patriotic tours to Washington, D. C., in connection with this year's celebration of the 200th anniversary of the birth of George Washington. Fourteen such tours, at bi-weekly intervals beginning February 6, are to be conducted from New York, Philadelphia, Pa., Wilmington, Del. and intermediate points, the itinerary to include all historic points in the national capital and its environs.

The tours have been planned, the announcement states, to make them especially interesting to teachers and pupils of high schools and elementary schools. Tour fares will cover reduced rate railroad tickets, meals, accommodations at selected Washington hotels and sight-seeing trips.

Canadian Clerks Wage Conciliation

The submission of the Canadian Pacific in support of its contention that the clerks, freight handlers and station employees should accept a cut of ten per cent in their wages was made before a board of conciliation at the first session in Montreal last week. The board, after hearing the case of the railway, outlined by George Hodge, manager of the department of personnel, adjourned until this week to allow the Brotherhood of Railway Clerks to prepare a reply.

The agreement in force between the railway and the personnel concerned, provides that thirty days' notice shall be given by either side in the event that a wage alteration is proposed. This notice

was served on the employees in question and was met by a refusal to accept it. In view of this, the railway now ask that a revision of the contract be made.

Injunction Against Auto Freight Firms

A temporary injunction to prevent nine automobile freight firms and several individuals from operating as common carriers between Wenatchee, Wash., and Spokane and Seattle, was granted by Judge W. O. Parr in the superior court at Wenatchee, Wash., on January 20 upon request of the railroads—the Great Northern, the Northern Pacific, the Chicago, Milwaukee, St. Paul & Pacific—the Consolidated Freight Lines and Cater's Spokane, Seattle and Tacoma Fast Freight Service. The firms enjoined include the Spokane-Seattle Auto Freight Company, the Washington Forwarding Company, the MacDougal Transfer Company, the Bayside Central Storage, the Spokane-Wenatchee Transfer Company, the Spokane Transport Company and the Reeder Truck Lines. The individuals are named jointly with the companies.

Ernest Resigns as President of Central Railway Club

E. E. Ernest, recently elected president of the Central Railway Club of Buffalo, N. Y., has resigned from that position, following his recent transfer to Pittsburgh, Pa., as superintendent of passenger transportation of the Pennsylvania, as announced elsewhere in this issue of *Railway Age*. C. H. Youst, terminal trainmaster, Delaware, Lackawanna & Western, at East Buffalo, Mr. Ernest's immediate predecessor as president of the Central Railway Club, will serve as acting president until the next regular meeting, on Thursday, February 11, when Mr. Ernest's resignation will be formally accepted, and when it is expected that P. L. Pfeffer, terminal trainmaster at Buffalo of the New York, Chicago & St. Louis, and first vice-president of the club, will be elected president.

The meeting on February 11 has been designated as General Electric Night, and will be under the direction of Walter J. Hedley, sales engineer, General Electric Company of New York. W. A. Gluesing, General Electric Company, Schenectady, N. Y., will explain "Adventures in Science," illustrating his remarks by demonstrations of laboratory apparatus, and W. S. H. Hamilton, assistant electrical engineer, New York Central, will speak on "Three Power Oil-Electric-Battery Locomotives on the New York Central."

N. & W. Efficiency Meeting

Employees of the Norfolk & Western will participate in a system-wide efficiency meeting on February 18, when local efficiency meetings at principal points on the railroad will be joined by an elaborate telephone hook-up, featured by an address by an executive officer. The broadcast, which will center in Roanoke, Va., is the result of a suggestion made at the last annual system meeting, that local efficiency clubs hold

simultaneous meetings several times during the year and be joined by a telephone hook-up.

Dates of all local meetings on the railroad for February will be changed to February 18, when local efficiency clubs will conduct individual programs before the 25-minute broadcast starts, at 8:15 p.m., and after it is completed. Cities and towns included in the system-wide hook-up are: Norfolk, Petersburg, Crewe, Hopewell, Lynchburg, Shenandoah, Hagerstown, Winston-Salem, Christiansburg, East Radford, Pulaski, Bristol, Bluefield, North Fork, Iaeger, Wilcoe, Williamson, Kenova, Portsmouth, Columbus and Cincinnati.

The first system-wide radio-telephone hook-up on the railroad for broadcasting proceedings of employee meetings was in 1930 at the annual system efficiency meeting at Roanoke. This proved so popular that it was used again at the 1931 system efficiency meeting, also held in Roanoke.

Co-Ordinated Passenger Service on Central Vermont Branch

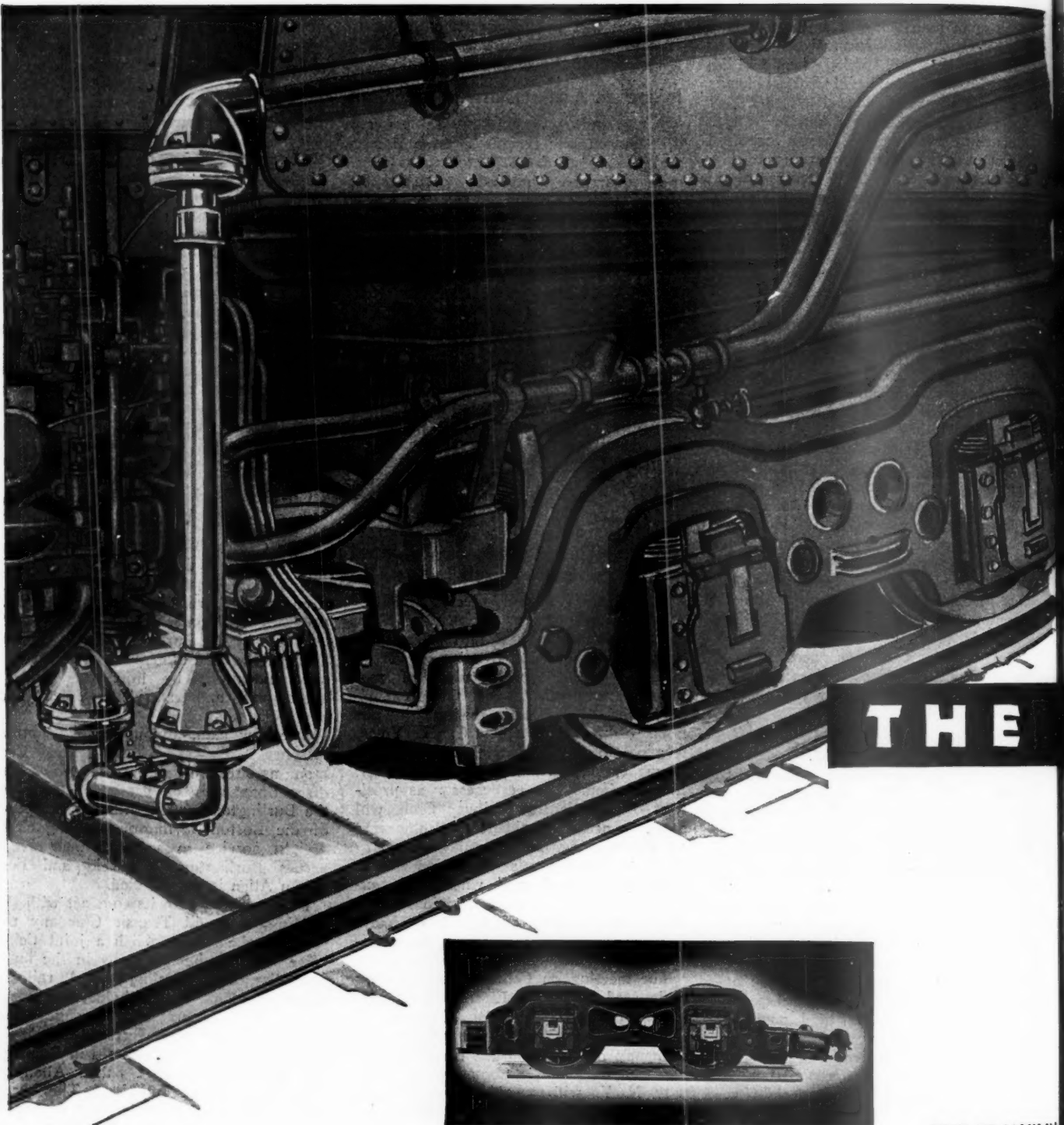
The Central Vermont, in discontinuing passenger train operation on its Burlington branch, is making available to patrons a co-ordinated rail-highway service which provides coach passengers with bus service operated by the Burlington Rapid Transit Company and Pullman passengers with accommodations by limousine between their homes and trainside at Essex Junction, Vt.

The new plan, announced by Edmund Deschenes, manager of the Central Vermont, as effective February 1, involves the discontinuance of all passenger trains on the Burlington branch with the exception of the Boston-Burlington sleeping cars; freight service over the branch which serves Burlington, Winooski and Fort Ethan Allen is not affected.

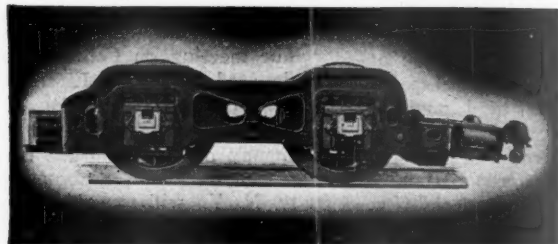
In connection with its contract with the Burlington Rapid Transit Company the railroad plans to establish a joint ticket office with the bus company in the business district of Burlington. A railway ticket now entitles the holder to transportation of himself and baggage from any point on the Burlington Rapid Transit Company's bus routes in Burlington, Winooski or Fort Ethan Allen to trainside at Essex Junction. The buses will provide similar services out of Essex Junction for incoming passengers. A Pullman passenger need but call the ticket office and make his reservation to provide himself with taxi service from his door to trainside; the incoming Pullman passenger is also carried by limousine from Essex Junction to whatever be his destination along the route of the Burlington branch.

Canadian Unions Urge Legislation

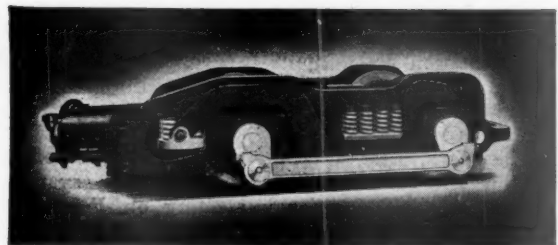
Legislative representatives of the railway brotherhoods last week at Ottawa urged upon the Dominion Government the holding of "a scientific investigation into the human factor in industry and the apportionment of wealth invested in and produced by industry." The investigation was urged with a view to arriving



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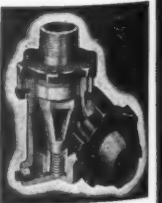


FOUR WHEEL TRAILER BOOSTER

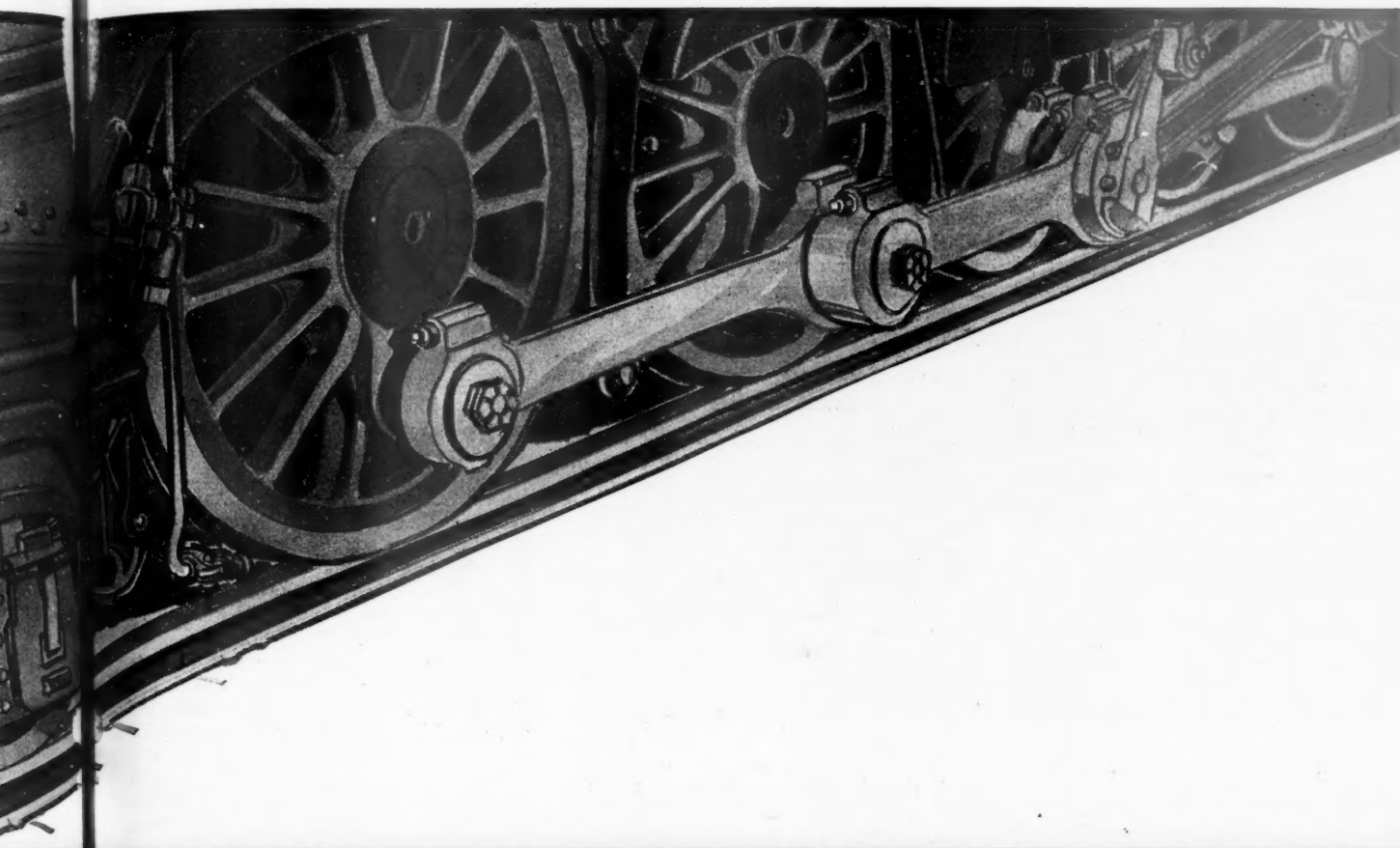


FOUR WHEEL TENDER BOOSTER

**THE FRANKLIN
SLEEVE JOINT**
Permits applications
above the drawbar



FRANKLIN RAILWAY



THE LOCOMOTIVE BOOSTER

Essential to Maximum Operating and Maintenance Economies . . .

THE Locomotive Booster serves railroads in two definite capacities—as a power unit and as a means to reduce maintenance.

Primarily it offers the most economical method of securing extra power to increase gross ton miles per hour. It is one of the important elements that makes Super-Power locomotives the efficient power plants they are today.

On road engines, the Booster gives the added punch that gets underway heavy trains the locomotive can handle at speed. It speeds up passenger,

freight and yard service. It gives power when most needed—for starting, accelerating and to maintain speed on heavy grades. Not required at road speeds it is cut out entirely. Maximum operating economy results.

The tractive effort of the Booster involves a maintenance cost of approximately half a cent per mile. If extra tractive effort is secured through an added pair of drivers, this fixed expense increases by 5 to 10 cents. The Booster is essential where low cost maintenance prevails.

FRANKLIN
VE JOINT
applications
the drawbar



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MONTREAL

at some solution for the constantly recurring unemployment problem. It was, the railway brotherhood representatives asserted, a matter of vital importance, and should be undertaken without unnecessary delay.

The delegation through its spokesman, William L. Best, national legislative representative of the Brotherhood of Locomotive Firemen and Enginemen, asked for an amendment to the British North America Act (which is part of Canada's constitution) restricting the veto powers of the Senate. Several amendments to the Railway Act were also asked for; the government was requested to give favorable consideration to the principle of government control of radio broadcasting; and suggestions were made in respect to the unemployment situation, and also to the matter of unemployment insurance.

Premier Bennett intimated that the time has about arrived for a scientific study of the problem of unemployment. The representations of the delegation were received, and consideration of the suggestions made was promised.

One of the amendments suggested would make it compulsory for a railway to obtain the authorization of the Railway Commission before making any change in the routing of traffic which would lead to abandonment of shops or division terminals. It would also require three months' notice to the employees concerned before any such change could be made. Compensation for financial loss would be determined by the board.

New York State Crossing Signal Regulations

The Department of Public Service of the State of New York has recently issued an order amending its order of December 3, 1925, concerning automatic highway crossing signals. The changes include many of the recommendations of the American Railway Association's Joint Committee on Highway Crossing Protection as set forth on page 144 of the *Railway Age* for January 16.

In brief, New York has adopted the button-type reflector sign reading "Stop on Red Signal" which is to be applied to flasher-light crossing signals; and at crossings involving more than one track a reflector-type sign indicating the number of tracks. This latter is to be mounted above the flashing-light signal. The flasher lights are to shine in both directions along the highway, and each lamp must be equipped with a hood and a background 20 in. in diameter so as to improve the visibility of the signal in daylight. A signal located in the center of a street must be equipped with a yellow reflecting prism. The standard painting for each signal includes the requirement that the vertical post, the horizontal crossbar and the signal are to be painted, white or aluminum, the lamp case and background black, and the concrete foundation with black and white stripes.

These new requirements are to be effective with respect to all signals installed after January 1, 1932, while those in service prior to that time are to be painted to

conform with the new standard when repainting is necessary, all such repainting to be completed by January 1, 1935. All flashing-light crossing signals which were installed prior to January 1, 1932, except those which are equipped with the illuminated word "Stop," must, by January 1, 1934, be equipped with the reflector prism signs reading "Stop on Red Signal" and displaying the number of tracks. Flashing-light crossing signals which were installed prior to January 1, 1932, must be equipped to comply with all of the requirements of the order before January 1, 1937.

Senate Committee Takes Up Motor Vehicle Legislation

Hearings were begun before the Senate committee on interstate commerce on February 1 on Senator Couzens' bill to regulate motor vehicle transportation. Examiner Leo J. Flynn of the Interstate Commerce Commission was the first witness and outlined to the committee some of the facts regarding the present situation of motor vehicle transportation which were included in his proposed report on co-ordination of motor transportation.

When he was pressed for statistics as to the amount of traffic carried by motor vehicles and the proportion of it that is state or interstate, and replied that only estimates are available because the motor vehicle operators are not required to report such information, Senator Couzens asked if that fact does not indicate that it is essential to have legislation to furnish the information before Congress can intelligently act on the subject of regulation.

Opposition to federal regulation of motor trucks as "undesired by the public and as useless in aiding the railroads," was voiced by T. R. Dahl, vice-president, White Motor Truck Company, and member of the motor truck committee, National Automobile Chamber of Commerce, who appeared before the committee on February 4. Mr. Dahl said the motor industry favored reasonable federal bus regulation, but that motor trucks provide an entirely dissimilar type of service and their regulation by the states has not been successful. The primary difficulty has been that 85 per cent of the trucks are not engaged in serving the public as common carriers, he said, but are owned by shippers to carry their own goods. He asserted that the cost of trying to enforce a federal regulatory act would be totally out of proportion to any evil that has been suggested from any point of view and that regulation would operate to the disadvantage of the small shipper by burdening the operation for hire upon which he must depend, while the large shipper can and does operate his own trucks which will be free of regulation.

Failure of Signal Unexplained

The Bureau of Safety of the Interstate Commerce Commission, reporting on a collision at West Seventy-Fifth and Leavitt streets, Chicago, on November 17, 1931, has concluded that the cause

was "not definitely ascertained." Apparently, two trains approaching a grade crossing both received clear signals. The collision occurred at 4:18 a.m. and resulted in the fatal injury of a brakeman and less serious injuries to a fireman and a switchman.

A westbound transfer freight of the Illinois Central, moving on the track of the Belt Railway, ran past a derail at the right-angle crossing of the Baltimore & Ohio Chicago Terminal, and was brought to a stop with the leading car on the Baltimore & Ohio tracks; a northbound B. & O. transfer freight moving at about 25 m.p.h., ran into the side of the I. C. train, badly damaging both locomotives and several cars and dislodging the machine in the interlocking cabin.

The route had been cleared for the B. & O. train several minutes before the arrival of either train and the towerman declared that the signal levers for the Belt line were against that line and had been in that position for more than an hour. The derail on the Belt line was in derailing position and threw the leading wheels of the I. C. locomotive off the track; but there was considerable question as to whether the signal displayed stop. Five railroad employees were positive that it showed green prior to and immediately following the collision. No person was found who had seen a red indication displayed by the signal before the collision, but it was red about an hour afterwards. It was a wire connected signal. The derailment had done so much damage that no conclusion could be formed as to what condition the signal had been in before the time of the collision.

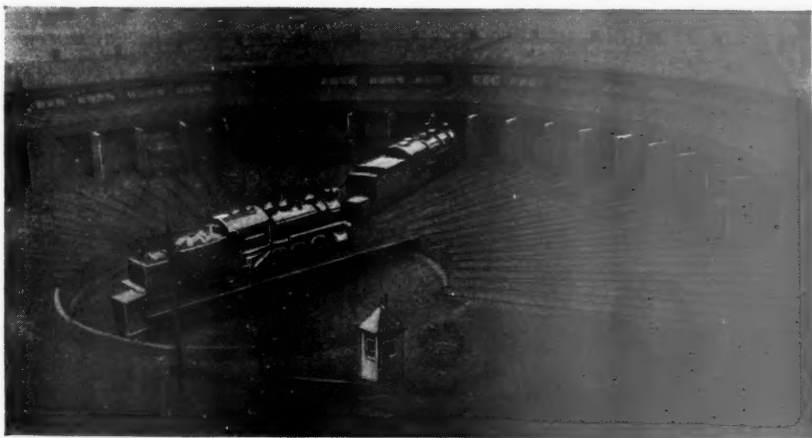
The derail failed to accomplish its intended function, all wheels, except one pair, having remained on the rails. Opinions as to the cause of this failure were not uniform, the proximity of the derail to a curve and the speed, weight and long rigid wheelbase of the locomotive were among the tentative explanations.

Railways Suggest New Deal in Rate Making

(Continued from page 259)

States Supreme Court in the Western Grain Rate Case is cited and combined with the foregoing quotations to make the point that "In the treatment of the serious railroad revenue problem thus remaining unsolved since 1920 the commission may follow either one of two courses: It may continue to treat, as if they were controlling precedents, the general rate cases it has decided in the past or it may give greater, if not controlling, weight to 'revenue considerations.' That fundamental revenue requirements rather than citation of obsolete rate decisions, should control in current rate-making, is indicated by the following further statement of the Supreme Court in the Grain Case decision: 'Overwhelming economic forces have made the record before the commission irresponsible to present conditions.'

"It is respectfully submitted that, if railroad managements are to be accorded any



Be Sure No Arch Brick Is Missing

IN these days of rigid economy, don't draw the line too fine and let a locomotive leave the roundhouse with an imperfect Arch due to lack of supplies.

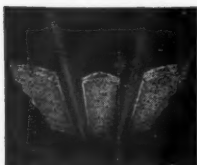
A single missing Arch Brick has a mighty serious effect on steaming and on the efficiency of the locomotive.

Today, a dollar's worth of fuel means more than ever before. To spend it effectively, every locomotive Arch should be maintained in perfect condition.

Be sure your stocks on hand are ample to provide fully for all locomotive requirements, so that locomotive efficiency will not suffer.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion
Specialists

fair opportunity to continue successful operation, then the mandate of Congress embodied in section 15 (a) of the Transportation Act must be given more weight, and if this is done, it seems obvious that rate precedents, which have contributed to the present financial difficulties of these carriers, may no longer be permitted to control. Instead, a new starting point, which gives adequate recognition to the revenue requirements of the carriers, must be adopted as a guide for the future."

Other grounds upon which the petition is based are set forth as follows:

The pending investigation into fertilizer rates in Eastern Trunk Line and New England territories calls for a new beginning.

Since much fertilizer traffic in Trunk Line and New England territories moves on sixth class rates and those rates were reduced effective December 3 (Eastern Class Rate Investigation), and increased effective January 4 (Fifteen Per Cent Case), the issues in the pending cases are blurred, if not moot.

Any revision of rates on fertilizer in Eastern Trunk Line territory should be co-ordinated with the fertilizer rate structure in Central Freight Association territory and such co-ordination calls for a general investigation including a reconsideration of the fertilizer rates prescribed in the Ohio Farm Bureau Case.

Meetings & Conventions

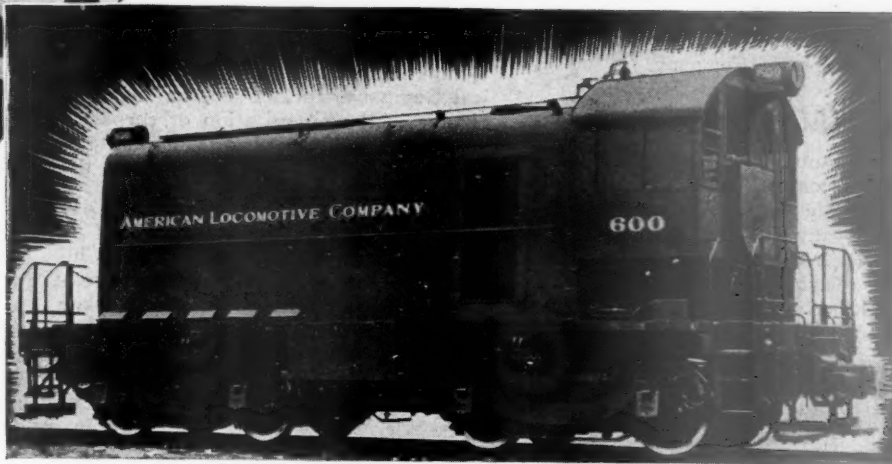
The following list gives names of secretaries, date of next or regular meetings and places of meetings.

- AIR BRAKE ASSOCIATION.**—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City.
- ALLIED RAILWAY SUPPLY ASSOCIATION.**—F. W. Venton, Crane Company, 836 S. Michigan Blvd., Chicago. To meet with Air Brake Association, Car Department Officers Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers Association and the Traveling Engineers' Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 S. Michigan Ave., Chicago.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C.R.R. of N. J., 143 Liberty St., New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—F. O. Whiteman, Room 800, 1017 Olive St., St. Louis, Mo. Next meeting, June 14-16, 1932, Detroit, Mich.
- AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.**—E. A. Abbott, Poole Bros., Inc., 85 West Harrison St., Chicago. Next meeting, Jan. 21, 1933.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—F. R. Borger, C. I. & L. R. R., 836 Federal St., Chicago. Next meeting, October, 1932, Washington, D. C.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—Guy C. Hecker, 292 Madison Ave., New York.
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.
Protective Section.—J. C. Caviston, 30 Vesey St., New York.
Safety Section.—J. C. Caviston, 30 Vesey St., New York.
Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York.
Division II.—Transportation.—G. W. Covert, 59 East Van Buren St., Chicago.
- Division III.—Traffic.**—J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering.**—E. H. Fritch, 59 East Van Buren St., Chicago. Next meeting, March 15-16, 1932, Palmer House, Chicago. No exhibit by National Railway Appliances Association at 1932 meeting.
- Construction and Maintenance Section.**—E. H. Fritch, 59 East Van Buren St., Chicago. Next meeting, March 15-16, 1932, Palmer House, Chicago.
- Electrical Section.**—E. H. Fritch, 59 East Van Buren St., Chicago.
- Signal Section.**—R. H. C. Balliet, 30 Vesey St., New York. Annual meeting May 10-11, 1932, Stevens Hotel, Chicago.
- Division V.—Mechanical.**—V. R. Hawthorne, 59 East Van Buren St., Chicago.
- Equipment Painting Section.**—V. R. Hawthorne, 59 East Van Buren St., Chicago.
- Division VI.—Purchases and Stores.**—W. J. Farrell, 30 Vesey St., New York, N. Y.
- Division VII.—Freight Claims.**—Lewis Pilcher, 59 East Van Buren St., Chicago.
- Division VIII.—Motor Transport.**—George M. Campbell, 30 Vesey St., New York.
- Car Service Division.**—C. A. Buch, 17th and H. Sts., N. W. Washington, D. C.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 18-20, 1932, Toronto, Ont. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—A. W. Large, Gen. Agri. Agt., C. R. I. & P. Ry., Chicago, Ill. Annual meeting, June 15-17, 1932, Brown Hotel, Louisville, Ky.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 59 East Van Buren St., Chicago. Next meeting, March 15-16, 1932, Palmer House, Chicago. No exhibit by National Railway Appliances Association at 1932 meeting.
- AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.**—Miss E. Kramer, M-K-T Employees Magazine, St. Louis, Mo. Next convention, April 21-22, 1932, Plaza Hotel, San Antonio, Tex.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—G. G. Macina, C., M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—R. E. Schindler, Union Trust Bldg., Washington, D. C.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Paul D. Mallay, Johns-Manville Corp., 292 Madison Ave., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—H. L. Dawson, 1104 Chandler Building, Washington, D. C.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn., Annual convention, May 18-20, 1932, Louisville, Ky.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.
- ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, Transportation Building, Washington, D. C.
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—S. A. Baber, High Grade Manufacturing Co., 10418 St. Clair Ave., Cleveland, Ohio. Meets with American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular Meetings, 2nd Monday in each month, except June, July, and August, Windsor Hotel, Montreal, Que.
- CAR DEPARTMENT OFFICERS ASSOCIATION.**—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—G. K. Oliver, 2514 W. 55th St., Chicago. Regular meetings, 2nd Monday in month, except June, July, and August, Auditorium Hotel, Chicago.
- CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.**—I. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Regular meetings, 2nd Monday of each month, except July, August and September, Room 299, 610 So. Main St., Los Angeles.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—F. G. Wiegman, 4036 Scanlon Place, St. Louis Mo. Meetings first Tuesday of each month, except July and August, American Hotel Annex, 6th and Market Sts., St. Louis, Mo.
- CENTRAL RAILWAY CLUB OF BUFFALO.**—T. J. O'Donnell, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.
- CINCINNATI RAILWAY CLUB.**—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Meetings 2nd Tuesday in February, May, September and November, Hotel Gibson, Cincinnati, O.
- CLEVELAND RAILWAY CLUB.**—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings second Monday each month, except June, July, August, Auditorium, Brotherhood of Railroad Trainmen's Building, West 9th St., and Superior Ave., Cleveland.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich.
- INTERNATIONAL RAILWAY CONGRESS.**—January 10-16, 1933, Cairo, Egypt.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—C. T. Winkless, Room 700, La Salle Street Station, Chicago.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.
- MASTER BOILER MAKERS ASSOCIATION.**—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.
- MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.**—(See Car Department Officers' Association.)
- NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—James B. Walker, 270 Madison Ave., New York. Annual convention, November 15-18, 1932, Hot Springs, Ark.
- NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.**—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, 1014 South Michigan Ave., Chicago. Annual meeting, March 14, 1932, 1014 South Michigan Ave., Chicago. No exhibit at A. R. E. A. convention in 1932.
- NATIONAL SAFETY COUNCIL.**—Steam Railroad Section; J. L. Walsh, (Honorary vice-chairman), Supt. Safety, M-K-T. R. R., Dallas, Tex.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, except June, July, August and September, Copley Plaza Hotel, Boston, Mass.
- NEW YORK RAILROAD CLUB.**—D. I. McKay, 26 Cortlandt St., New York. Regular meetings 3rd Friday in month, except June, July and August, 29 W. 39th St., New York City.
- PACIFIC RAILWAY CLUB.**—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings 2nd Thursday in month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—E. R. Woodson, 1124 Woodward Building, Washington, D. C. Next convention, 1932, Buffalo, N. Y.
- RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 1112 Shoreham Building, Washington, D. C.
- RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, 4th Thursday in each month except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS ASSOCIATION.**—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division and Motor Transport Division, American Railway Association.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division I.
- RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Next convention, September 20-22, 1932, Hotel Stevens, Chicago. Exhibit by Track Supply Association.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August, Statler Hotel, St. Louis.
- SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmonds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. T. Miller, 4 Hunter St., S.E., Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—R. G. Parks, A. B. & C. Ry., Atlanta, Ga.
- SUPPLY MEN'S ASSOCIATION.**—E. H. Hancock, Treasurer, Louisville, Varnish Co., Louisville, Ky. Meets with A. R. A. Div. V. Equipment Painting Section.
- TORONTO RAILWAY CLUB.**—J. A. Murphy, P. O.

Continued on Next Left Hand Page

Alco

LOCOMOTIVE



IMPROVES SWITCHING SERVICE LOWERS OPERATING EXPENSE

TRAINS brought in by modern road engines demand effective handling in the yard if the full benefits of the modern road engines are to be realized.

Many old switchers of light capacity and high maintenance charges should be scrapped and replaced by modern switchers embodying the same principles of design that have made modern main line engines so much more efficient and economical. However, in this particular service there are cases where the railroad man today has another choice—the ALCO Diesel Locomotive.

The most important characteristics of the ALCO Diesel Locomotive are high availability, low fuel costs when operating, no standby losses, very high starting tractive power. It requires practically no engine house force, no coal or water chutes, and reduces track maintenance.

These operating economies are lasting and cumulative. They outweigh by a big margin the first cost of the ALCO Diesel Locomotive when the high availability of the Diesel Locomotive can be utilized to fullest extent. There are many cases where, because of the low operating cost, the margin of profit over the carrying charges is large enough to make an ALCO Diesel Locomotive an exceedingly attractive investment.

American Locomotive Company
30 Church Street New York N.Y.

DIESEL LOCOMOTIVE

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Box 8, Terminal "A," Toronto. Regular meetings 1st Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Ox-weld Railroad Service Co., Carbon & Carbide Building, Chicago. Meets with Roadmasters and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O.
WESTERN RAILWAY CLUB.—J. H. Nash, Dri-Stream Valve Sales Corp., 122 S. Michigan Ave., Chicago. Regular meetings 3rd Monday in each month, except June, July, August and September, Hotel Sherman, Chicago.

Equipment and Supplies

FREIGHT CARS

THE THUNDER BAY QUARRIES COMPANY has ordered four 50-cu. yd. capacity air dump cars from the Koppel Industrial Car & Equipment Company.

IRON & STEEL

THE MISSOURI-KANSAS-TEXAS has ordered 2,800 tons of 90-lb. rail, dividing the order equally between the Bethlehem Steel Company and the Tennessee Coal, Iron & Railroad Co. The rails will be used in relaying portions of the main-line track between Stringtown, Okla., and McAlester.

SIGNALING

THE READING COMPANY has ordered from the Union Switch & Signal Company 20 sets of cab signal equipments for "trailer" passenger cars to be used in multiple-unit trains in the electrified zone between Philadelphia and Lansdale. The 70 motor cars to be used in this service have already been equipped with four-indication continuous cab signals.

MISCELLANEOUS

THE CHESAPEAKE & OHIO has placed an order with the Pullman Car & Manufacturing Corporation for the installation of air conditioning equipment in three coaches and three dining cars owned by the railroad.

THE LONDON, MIDLAND & SCOTTISH of Great Britain has recently placed in service a number of so-called "snack cars" on excursion trains. This innovation in dining service is made to provide excursionists with light lunches such as sandwiches, cakes, etc., since the railway felt that a growing number of travelers prefer such lunches to a regular meal. In commenting upon these "snack cars" Modern Transport (London) quotes the railway announcement to the effect that "This is the first occasion on which the 'snack cars' purely and simply, and not serving set meals as well, has been applied as a general principle to rail travel." A similar luncheon service is available to coach passengers of Baltimore & Ohio night trains between New York and Washington, D. C. and other railways in the United States have operated lunch counter cars.

Supply Trade

M. I. Dorfan has been appointed manager of the dust collector division of the **Blaw-Knox Company**, Pittsburgh, Pa.

C. L. McMullen has been appointed manager of engine sales in the special sales division of the **Caterpillar Tractor Company**, Peoria, Ill.

James P. Ferguson, for the last 10 years sales engineer of the **Reading-Pratt & Cady Company**, Bridgeport, Conn., has been appointed assistant general manager of sales. The Reading-Pratt & Cady Company is an associate company of the American Chain Company, Inc.

The Chipman Chemical Engineering Company, Inc., Bound Brook, N. J. has changed its name to the **Chipman Chemical Company, Inc.** There has been no change in the organization or corporate structure, and no change is contemplated in the policy or activities of the corporation.

Everett D. Graff, vice-president of **Joseph T. Ryerson & Son, Inc.**, Chicago, has been elected first vice-president; **Robert C. Ross**, assistant to the president, in charge of plant operations, has been elected vice-president; and **Harold B. Ressler**, general manager of sales, has also been elected vice-president.

At the annual meeting of the **Forging Manufacturers' Association**, held in New York City on January 15, the following officers were elected for the year 1932: **C. W. Heppenstall** of the Heppenstall Company, Pittsburgh, Pa., president; **R. F. Devine, Jr.**, of the Erie Forge Company, Erie, Pa., and **C. E. Wilder** of the National Forge & Ordnance Company, Irvine, Pa., vice-presidents, and **C. E. Finkl** of A. Finkl & Sons Co., Chicago, treasurer.

J. F. Melhope, formerly Chicago district sales manager for the Central Alloy Steel Corporation and later for the Newton Steel Company, has joined the sales force of the **Chicago Steel Service Company**, warehouse distributors for Toncan iron and Enduro stainless steels, products of the Republic Steel Corporation, Youngstown, Ohio. The Chicago company has recently remodeled and enlarged its offices and warehouse facilities.

The White Company, Cleveland, Ohio, manufacturers of trucks and motor coaches, has entered into a contract agreement with the **Indiana Motors Corporation**, Marion, Ind., by which it will market through its world-wide factory branch and dealer organization Indiana assembled trucks, of from one to 2½ tons' capacity. The agreement is solely a merchandising program and does not alter the engineering or manufacturing policies of either company.

With a view to rendering improved

service to the railways, **Fairbanks, Morse & Co.**, Chicago, has established six district railroad sales offices. **C. H. Wilson**, who for some years has represented the company on western lines in Houston, Tex., St. Louis, Mo., and Chicago, has been placed in general charge of railroad sales, with headquarters in Chicago. The requirements of the railroads will hereafter be handled from the district offices with **E. P. Vroome** manager of railroad sales at the New York district office; **H. E. Vogel** at Baltimore, Md.; **W. L. Nies** at Chicago; **W. B. O'Neil** at St. Louis, Mo.; **G. Howard** at St. Paul, Minn.; and **L. H. Matthews** at San Francisco, Cal. Among the representatives of the company who will operate from these offices are **E. P. Chase** and **R. F. Lane** at New York; **F. C. Snyder**, **E. C. Golladay** and **B. S. Spaulding** at Chicago; **E. J. Coverdale** at Washington, D. C.; **C. T. Fuggitt** at Atlanta, Ga.; and **C. A. Rauch** at Houston, Tex. Contracts for the erection of coaling stations and the installation of sand, coal and cinder handling machinery are in charge of **W. F. Anderson** at Chicago, with **J. C. Flannagan** and **J. T. Frame** as representatives.

The Bryant Machinery & Engineering Co. has been organized with offices at 400 West Madison street, Chicago, to serve a group of machinery manufacturers as their consolidated sales department. It will assume the responsibilities of sales engineering and management, advertising direction and general distribution for all territories. It will act in the dual capacity of local dealer in certain territories and also as a general distributor. The scope of the business embraces high-grade machine tools, general metal-working machinery and special equipment as required in the various fields of industry and by railroads. **A. G. Bryant**, general manager of the machinery division of **Joseph T. Ryerson & Son, Inc.**, has resigned to become president of the new company, while others active in the management of the company are **A. P. Schumann**, formerly sales manager of the machinery division of **Joseph T. Ryerson & Son, Inc.**; **Ira B. Yates**, formerly chief engineer of the machinery division of **Joseph T. Ryerson & Son, Inc.**, and **M. J. Wiora**, formerly office manager of the machinery division of **Joseph T. Ryerson & Son, Inc.** Directors of the company are **A. G. Bryant**, **A. G. Bryant, Jr.**, executive vice-president of the Austin Company, and **E. B. Wilkinson** of Gallagher, Rinaker, Wilkinson and Hall.

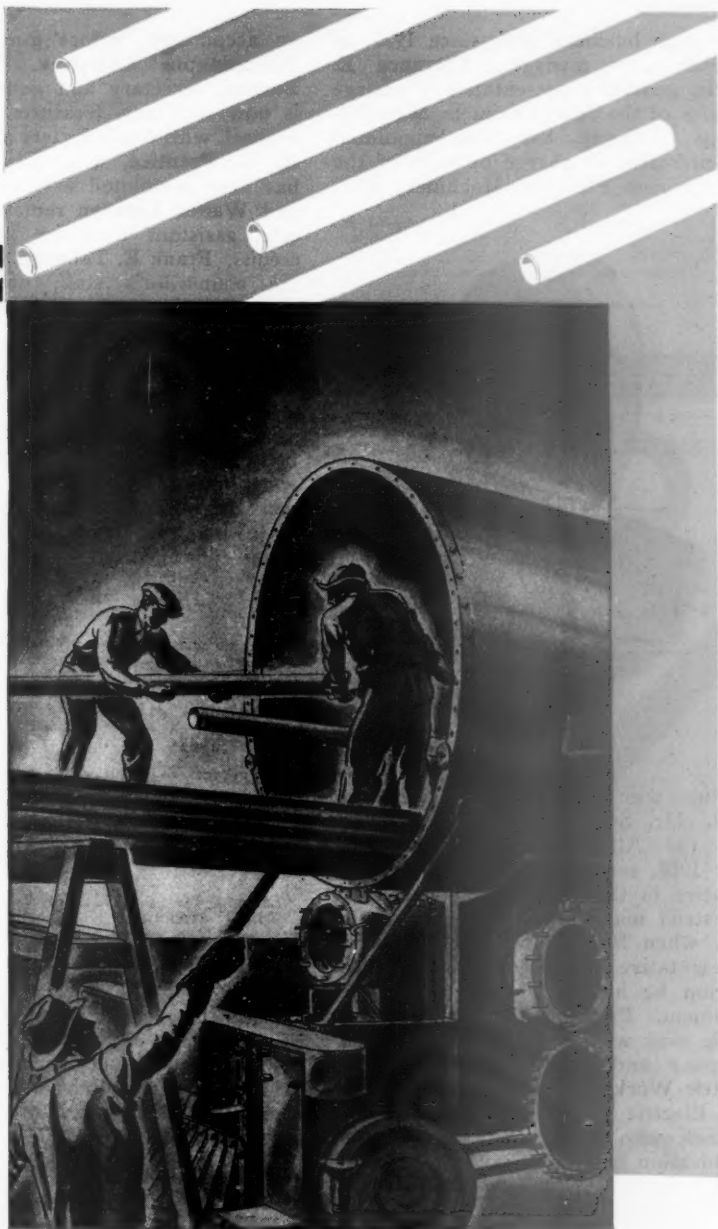
C. E. Wilson, general sales manager of the **Worthington Pump & Machinery Corporation** has been appointed vice-president in charge of industrial relations with headquarters at New York. Mr. Wilson began work with the Worthington organization in 1899 as a salesman in the Chicago office. He subsequently served consecutively as sales manager of the Chicago office, assistant general sales manager in charge of all territory from Cleveland to Denver, assistant general sales manager in charge

LONG - LIFE

TONCAN

IRON

makes a better Boiler Tube



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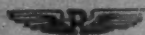
Boiler tubes of Toncan Iron last longer because they avoid the weaknesses that cause renewal of ordinary tubes. « Toncan Iron tubes are seamless, thereby removing any chance of splitting. « Corrosion—that old enemy of boiler tubes—is checked by the superior resistance of Toncan Iron, the alloy of refined iron, copper and molybdenum. « Because tubes of Toncan Iron work easily and weld well, there are no installation troubles. « Judged from any viewpoint, boiler tubes of Toncan Iron are superior.

Toncan Iron Boiler Tubes, Pipe, Plates, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Nitralloy • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Culverts Climax Steel Staybolts • Upson Bolts and Nuts Track Material • Maney Guard Rail Assemblies Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel (20-27 Carbon)

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan copper-molybdenum iron castings for locomotives.

REPUBLIC STEEL CORPORATION

General Offices: Youngstown, Ohio



of foreign business, and, since 1923, as general sales manager. **Clarence E. Searle**, general representative in charge of sales of the Allis-Chalmers Manufacturing Company, has been appointed vice-president in charge of sales of the Worthington Pump & Machinery Cor-



C. E. Wilson

poration, with headquarters at Harrison, N. J. Mr. Searle has been associated with the Allis-Chalmers organization since 1908, serving first as sales representative in the Milwaukee office, then as district manager of that office, until 1915, when he was appointed general representative in charge of sales, which position he held until his present appointment. Prior to that service, Mr. Searle was with the Western Electric Company and with the Fort Wayne Electric Works, (a division of the General Electric Company.) **William H. Baumes**, who joined the Worthington organization in 1915 as comptroller and was appointed treasurer three years later, has retired at the age of 61. Mr.



Clarence E. Searle

Baumes had previously served in the accounting departments of the Delaware, Lackawanna & Western and the New England Railroad (now a part of the New York, New Haven & Hartford), also with steamship companies and as

an accountant, before going with the Worthington Company. **Charles N. Barney**, secretary and general counsel, is now secretary, treasurer and general counsel, with headquarters at New York. **A. L. Prentice**, assistant comptroller, has been appointed assistant treasurer, and **Walter Lehman** remains, as formerly, assistant treasurer in charge of credits. **Frank E. Talmage**, a member of the counsellor's staff, has been appointed assistant secretary.

Superheater Company

Consolidated net earnings of \$385,209 were reported by the Superheater Company for the year ending December 31, 1931, according to the annual report recently issued. This is equivalent to 43.5 cents per share on the company's 884,799 shares of capital stock outstanding.

The consolidated statement of earnings for 1931 follows:

Profit from Operations.....	\$145,132
Other Income:	
Interest and Dividends from Investments, Bank Balances, etc.....	815,585
Miscellaneous	33,172
Profit on Sale of Securities to November 30.....	214,736
	<u>\$1,208,625</u>
Depreciation	\$105,348
Federal, Dominion and Foreign Income Taxes.....	83,980
Loss on Sale of Securities in December	607,295
	<u>\$796,623</u>
Earnings for year 1931.....	\$412,002
Less: Applicable to minority interests	26,793
Net Earnings—After deduction of minority interests.....	<u>\$385,209</u>

The balance sheet shows current assets of \$12,348,303 and current liabilities of \$646,142 leaving net working capital of \$11,702,161. Cash alone, at \$1,007,633, was nearly \$400,000 in excess of the total current liabilities.

GENERAL RAILWAY SIGNAL COMPANY—PROFIT AND LOSS ACCOUNT

Gross Operating Income, before Depreciation.....	\$2,721,857
Selling, Administrative and General Expenses.....	<u>1,033,601</u>
	\$1,688,256
Interest, Dividends and Miscellaneous Income.....	<u>157,503</u>
	\$1,845,759

From which deduct:	
Depreciation and Amortization.....	\$339,281
Interest Charges on Temporary Loans.....	28,803
Foreign Exchange Losses.....	47,421
Loss on Sale of Marketable Securities.....	\$69,343
Less Appropriated from Reserve.....	<u>69,343</u>
Provision for Federal and State Taxes.....	<u>220,000</u>
	635,505
Net Income for year.....	<u>\$1,210,254</u>

SURPLUS ACCOUNTS

Surplus as at December 31, 1930.....	Paid-in surplus \$3,665,131	Earned surplus \$5,296,228
Net Income for Year 1931.....		<u>1,210,254</u>
	<u>\$3,665,131</u>	<u>\$6,506,482</u>
From which deduct:		
Dividends paid, less dividends on Treasury Stock:		
Preferred—6%		\$141,250
Common—\$5.00 per Share.....		<u>1,611,875</u>
Excess of cost over stated value of:		
Common Stock purchased and retired, 32,500 Shares—in terms of resolution of stockholders, September 14, 1931.....	\$1,930,680
Preferred and Common Stock purchased, and held in Treasury at December 31, 1931.....		111,035
Appropriation to Reserve for Shrinkage in Value of Marketable Securities		1,625,000
Adjustment of Fixed Assets and Depreciation Reserves applicable to prior years		364,222
Other Charges applicable to prior years.....		<u>12,048</u>
Total Deductions.....	<u>\$1,930,680</u>	<u>\$3,865,431</u>
Surplus as at December 31, 1931.....	<u>\$1,734,451</u>	<u>\$2,641,051</u>
Total Surplus as at December 31, 1931.....		<u>\$4,375,502</u>

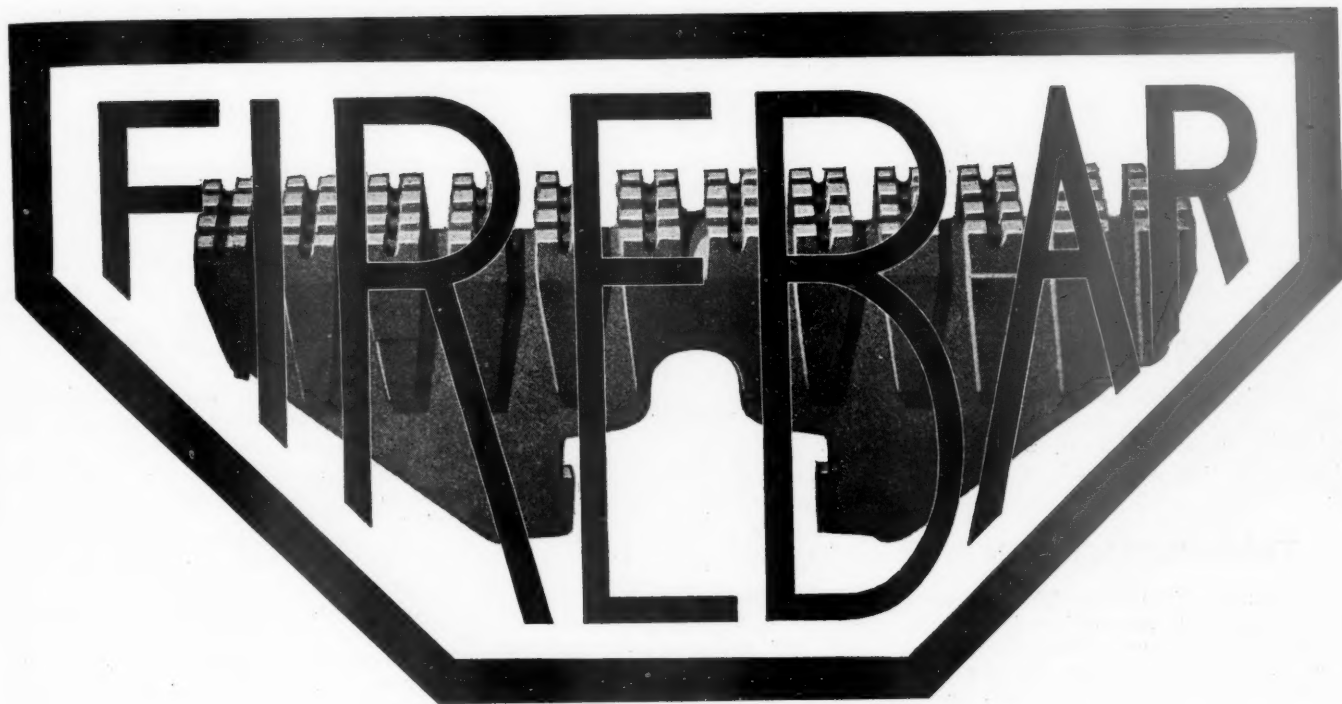
In his remarks to the stockholders **George L. Bourne**, chairman of the board of directors, spoke of future prospects as follows:

The radical reduction in passenger and freight car movement, the resulting decline in net operating income of the railroads, as well as the present low industrial load of the public utilities undoubtedly will be somewhat corrected as the general business situation improves from these levels. There can be, however, little improvement in our business situation until the railroads are allowed such fair return on their capital structure as will maintain their credit and provide funds for the continued improvement of their properties. They represent the largest purchasing interests in this country and only as the present credit situation, which these major industries are facing, clears up can we look for an improvement in our own business situation.

General Railway Signal Company Annual Report

Net income, after allowing for depreciation and taxes, of \$1,210,254, equivalent, after deduction of preferred stock dividends, to \$3.33 per share of outstanding common stock, has been reported by the General Railway Signal Company for the year ending December 31, 1931. The regular dividend of \$5 per common share was maintained, but was paid in part from surplus. These figures compare with net income of \$2,432,350 and earnings per common share of \$7.07 for the preceding fiscal year. Current assets, as of December 31, 1931, were \$6,966,217, while current liabilities, on the same date, amounted to \$1,596,785, both totals representing substantial reductions from the corresponding figures for December 31, 1930.

The volume of orders booked in 1931, the report states, was 66.8 per cent of that for 1930; orders executed were 67.6 per cent of those filled during the previous year, and value of unfilled orders on hand on January 1, 1932, was 77.3 per cent of the value of those on hand at the opening of 1931. "Installation of the major part of all the plants ordered in the last half of 1931 will be started



BETTER FIRES

FIREBAR CORPORATION
CLEVELAND OHIO.

shortly and all will be completed this year," the report says; and adds: "Despite the generally unsatisfactory earning situation of the railways, it is expected that the company will book orders in substantial volume for new installations of its systems which greatly reduce costs of railway operation and improve the service."

Pursuant to a resolution adopted at a special stockholders' meeting on September 14, 1931, the company retired 32,500 shares of common stock, purchased in the open market during 1929, 1930 and 1931, and reduced its stated capital and paid-in surplus accordingly; while 5,096 shares of preferred and 4,300 shares of common stock are now held in the treasury. A special reserve of \$1,625,000 to take care of shrinkage in value of marketable securities was appropriated from earned surplus during the year.

The profit and loss and surplus accounts for the year ending December 31, 1931, are printed on the preceding page.

OBITUARY

Frank P. Keane, representative in the railroad sales department of the Standard Oil Company, Chicago, with headquarters in that city, died on January 29.

TRADE PUBLICATION

CATERPILLAR TRACTORS.—The Caterpillar Tractor Company has issued a booklet, describing, with illustrations, the assembly and operation, part by part, of its No. 25 tractor, the heavy-duty type, which is designed for a variety of outside work where crawler treads are required to negotiate uneven or loose ground encountered in ditch and pipe-line construction, hillside work, grading, etc.

Construction

BALTIMORE & OHIO.—Without finally abandoning its plans, this company has announced indefinite postponement of action on its proposed new passenger terminal at Twenty-fourth and Chestnut streets, Philadelphia, Pa.

CINCINNATI UNION TERMINAL.—A contract for the construction of a mail-handling building and the necessary platforms and canopies has been awarded to James Stewart & Co., New York, at a cost of \$498,100. This building, which will be constructed of brick, concrete and structural steel, will be 187 ft. by 172 ft. at the foundation. The Alvey-Ferguson Company has been awarded a contract for the installation of mail-handling conveyors in connection with the new building, at a cost of \$67,000. A contract for the construction of the substructures for the southeast and southwest elevated connections to the passenger terminal tracks has been let to the Temple Foundation Company, Cincinnati. The cost of this work will be \$110,000.

NEW YORK CENTRAL.—This company has awarded to the George J. Atwell Foundation Corporation, of New York City, a contract for the excavation necessary to accommodate depressed tracks between West Forty-fourth and West Forty-fifth streets, west of Tenth avenue, New York City.

Financial

ATCHISON, TOPEKA & SANTA FE.—Control of Subsidiaries.—The Interstate Commerce Commission has authorized modifications in the leases by which the Gulf, Colorado & Santa Fe controls the Texas & Gulf, the Gulf, Beaumont & Great Northern, the Gulf & Interstate, the Concho, San Saba & Llano Valley, and the Healdton & Santa Fe.

ATLANTIC COAST LINE.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a 3-mile line connecting with the Norfolk & Western in Petersburg, Va.

CHICAGO & NORTH WESTERN.—Bonds.—This company has applied to the Interstate Commerce Commission for authority for the authentication and delivery of \$6,000,000 of first and refunding mortgage 5 per cent bonds, to be pledged as collateral for short-term notes.

CHICAGO, ROCK ISLAND & PACIFIC.—Bonds.—The Interstate Commerce Commission has authorized the St. Paul & Kansas City Short Line to issue \$11,068,000 of first mortgage bonds to be delivered to the Rock Island at par, in payment for capital expenditures. The issue, which the Rock Island will guarantee, may be used by it as collateral security for short term notes.

DELAWARE, LACKAWANNA & WESTERN.—Notes.—This company has applied to the Interstate Commerce Commission for authority to pledge \$13,639,000 of New York, Lackawanna & Western first and refunding mortgage bonds and \$10,000,000 of Morris & Essex construction mortgage bonds as security for \$12,432,000 of promissory notes, of which \$11,000,000 are to be used to retire an indebtedness to the First National Bank of New York.

DENVER & RIO GRANDE WESTERN.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority for the abandonment of its line from Huerfano to Cuchara, Colo., 13.65 miles.

ERIE.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue \$25,000,000 of refunding and improvement mortgage bonds to be held in the treasury.

LOUISVILLE & NASHVILLE.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a line extending from East Bernstadt, Ky., northeasterly to Jewell, approximately 3 miles.

MINNESOTA WESTERN.—Receivership.—The Minnesota Western, which operates between Minneapolis, Minn., and Gluck, 115 miles, was placed in receivership on January 25, Harry E. Pence, president, being named receiver by the United States District Court at Minneapolis. The receivership was made necessary because the railroad has defaulted on the last two payments of interest on its bonds, amounting to \$20,000 each.

MISSOURI PACIFIC.—Bonds.—The Interstate Commerce Commission has authorized this company to issue \$30,000,000 of first and refunding mortgage 5 per cent bonds, series I, to be pledged as security for short term notes.

NORTHWESTERN PACIFIC.—Control of Petaluma & Santa Rosa.—The Interstate Commerce Commission has authorized the Northwestern Pacific to acquire by purchase of capital stock the Petaluma & Santa Rosa, a 37-mile electric line in Northern California, provided that through routes and joint rates of the latter company and the Western Pacific be maintained.

PENNSYLVANIA.—New Director.—Donald R. McLennan, Chicago capitalist, has been elected a director of this company, to fill a vacancy which has existed since the death of L. L. Rue.

PITTSBURGH & WEST VIRGINIA.—Notes.—This company has applied to the Interstate Commerce Commission for authority to borrow \$637,385 from the Railroad Credit Corporation to meet interest payments and to issue its two-year 6 per cent notes as security. It has also asked authority to issue \$2,100,000 of six-month 6 per cent promissory notes at par in renewal of a like amount of collateral notes maturing January 30 and March 2.

ULSTER & DELAWARE.—Taken over by New York Central.—Effective February 1 the operation of this railway was taken over by the New York Central, becoming the Catskill Mountain branch of its river division.

Average Prices of Stocks and of Bonds

	Feb. 2	Last week	Last year
Average price of 20 representative railway stocks..	33.36	35.63	93.33
Average price of 20 representative railway bonds..	69.95	70.91	93.49

Dividends Declared

Cleveland & Pittsburgh.—Guaranteed, 87½c, quarterly; Special Guaranteed, 50c, quarterly, both payable March 1 to holders of record February 10.

Delaware & Hudson.—2½ per cent, quarterly, payable March 21 to holders of record February 26.

Green Bay & Western.—Capital, \$5.00, annually, payable February 8 to holders of record February 6.

Pennsylvania.—50c quarterly, payable February 29 to holders of record February 1.

Reading Company.—First Preferred, 50c, quarterly, payable March 10 to holders of record February 18.

THE ILLINOIS CENTRAL, during 1931 carried 35,075,755 passengers on its electric suburban trains in Chicago, as compared with 41,859,297 in 1930, a decrease of 16 per cent. In 1929 the company transported 43,290,799 suburban passengers in that territory.

Greater Mileage from Many Parts—



MAINTENANCE reports show that guides, wrist pins, rod bearings, pistons and many other running gear parts wear longer and require less attention on locomotives equipped with HUNT-SPILLER *Air Furnace* GUN IRON Crosshead Shoes.

Their wear-resisting qualities help to prevent those disastrous crosshead pounds which literally tear a locomotive to pieces.

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HUNT-SPILLER GUN IRON

Air Furnace

Railway Officers

EXECUTIVE

Effective January 29, **T. Frank Joyce** resigned as assistant vice-president of the Boston & Maine.

FINANCIAL, LEGAL AND ACCOUNTING

W. R. Patterson, deputy general auditor of the Canadian Pacific, has been advanced to general auditor, succeeding **G. C. Gahan**, deceased.

Ian R. G. Collins, chief clerk in the stock transfer department of the secretary's office of the Canadian Pacific, has been appointed assistant secretary.

A. M. Gottschald has been appointed assistant secretary of the Northern Pacific, with headquarters at St. Paul, Minn., to succeed **R. H. Relf**, who has retired at his own request after nearly 53 years of continuous service with the Northern Pacific.

OPERATING

A. N. LaCombe, assistant to the general superintendent of the Chicago & North Western, with headquarters at Chicago, has been appointed superintendent of the Peninsula division, with headquarters at Escanaba, Mich., to succeed **Frank R. Lloyd**, retired.

George S. Lovering, assistant chief engineer of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., has also been appointed superintendent of telegraph and signals for the system. The telegraph work has heretofore been handled through the offices of the division superintendents.

W. B. Kirkland has been appointed superintendent of transportation of the Southern Pacific, Pacific Lines, with headquarters at San Francisco, Cal., to succeed **Robert L. Ruby**, who died on December 26, as noted in the *Railway Age* for January 9. It was incorrectly reported in the January 16 issue that Mr. Kirkland had been appointed assistant to the general manager.

F. C. Wilkinson, who has been on special duty in the office of the chief engineer of the Pennsylvania, at Philadelphia, Pa., has been appointed superintendent of the Logansport division, with headquarters at Logansport, Ind., where he succeeds **H. A. Hobson**, who has been transferred to the Buffalo division, with headquarters at Buffalo, N. Y. Mr. Hobson succeeds **E. E. Ernest**, who has been promoted to superintendent of passenger transportation of the Central Region, with headquarters at Pittsburgh, Pa., succeeding **T. J. Jelbart**.

H. J. Roth, trainmaster on the Springfield division of the Illinois Central, with headquarters at Freeport, Ill., has been promoted to superintendent of the St. Louis division, with headquarters at Carbondale, Ill., to succeed **J. T. Stanford**, who has been transferred to the Vicksburg division, with headquarters at Vicksburg, Miss. Mr. Stanford replaces **E. D. Holcomb**, who has been transferred to the Memphis division, with headquarters at Memphis, Tenn., where he will remain during the illness of **F. E. Hatch**. **S. F. Lynch**, chief clerk in the office of the superintendent of the Vicksburg division, with headquarters at Vicksburg, has been appointed trainmaster at Freeport, to succeed Mr. Roth. **H. S. Taylor**, trainmaster on the Illinois division, with headquarters at Champaign, Ill., has been granted a leave of absence and has been succeeded by **C. W. Davis**, also trainmaster at Champaign.

TRAFFIC

C. Fred Keller, general freight agent of the Lehigh & New England, has been appointed traffic manager. **Henry L. Albert** has been appointed general freight agent, and **R. E. Bauder** has been appointed assistant general freight agent, succeeding **M. A. Gangawer**, retired. All will have headquarters at Bethlehem, Pa.

John L. Bladon, general passenger agent of the Norfolk & Western, with headquarters at Roanoke, Va., has been promoted to passenger traffic manager to succeed **W. C. Saunders**, retired. **E. L. Repass**, chief clerk in the passenger traffic department, has been appointed assistant general passenger agent, with headquarters at Roanoke, a newly-created office. The position of general passenger agent, held by Mr. Bladon, has been discontinued.

A. E. Freeman, traffic representative for the Northern Pacific, at Seattle, Wash., has been promoted to assistant to the freight traffic manager, with headquarters at St. Paul, Minn., to succeed **J. P. Dennis**, who has been appointed assistant general freight agent at the same point, a newly-created position. **W. J. Woodruff**, city freight agent at Portland, Ore., has been appointed general agent, freight department, at Seattle, to succeed **H. H. Griffin**, who has been appointed commercial agent at Portland.

ENGINEERING AND SIGNALING

Following the consolidation of the Detroit and Peru divisions of the Wabash, under the name of the Montpelier division, **C. A. Johnston**, superintendent of the Detroit division, has been appointed division engineer of the new Montpelier division, with headquarters as before at Montpelier, Ohio.

MECHANICAL

G. W. Good, supervisor of shops of the Michigan Central, with headquarters at Detroit, Mich., retired on January 1.

OBITUARY

William F. Tye, assistant chief engineer of the Canadian Pacific in 1902-04, and chief engineer in 1904-06, died in Paris, France, on January 9. Mr. Tye was 71 years old.

C. H. Ashar, general coal freight agent of the Baltimore & Ohio, died on February 1, following an illness of several months. Mr. Ashar was born in Cincinnati, Ohio, on November 18, 1878. He first entered the service of the B. & O. as a clerk in the division freight agent's office at Vincennes, Ind., in July, 1905. On October 16, 1924, he was appointed general coal freight agent, the position he held until his death.

Edward H. Kemper, comptroller of the Southern, died at his home in Alexandria, Va., on January 30, in his sixty-sixth year. Mr. Kemper received his education at St. John's Military Academy, from which he was graduated in 1881. He entered railway service in October, 1881, as ticket assessor and messenger boy of the Virginia Midland (now part of the Southern). Later he served, consecutively until 1898, as general bookkeeper of the Richmond & Danville (now part of the Southern), and in a similar position with the



Edward H. Kemper

Southern. In September, 1898, he became assistant auditor of the Northern Alabama, Augusta Southern (now the Georgia & Florida), Alabama Great Southern, and the Southern. In July, 1904, he was advanced to auditor of the Southern, and in July, 1907, was appointed assistant comptroller. From June, 1918, until his death, he served as comptroller of that road and its subsidiary lines. During 1927-28, Mr. Kemper was president of the Railway Accounting Officers' Association.